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CANCER CONTROL.*

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The attitude of hopelessness in regard to cancer held by a large percentage of our physicians constitutes one of the chief stumbling blocks on the road to successful cancer control. Not many years ago this same pessimism was felt in regard to the cure of tuberculosis, but various organizations were formed and special clinics were established with the result that this disease has dropped from the first place on the mortality list in 1911 to the sixth place in 1928.

There is little doubt that the present cancer death rate will likewise be greatly lowered if family physicians will learn more about cancer and will pass this information on to the laity, and if they will refer cancer cases only to those physicians who have adequate equipment and training in this highly specialized field of medicine.

Certain families seem to inherit a predisposition to cancer but this does not mean that members of these families must succumb to it. In fact, the feeling of despair on the part of physicians and the laity in regard to cancer is not justified, for while there are many phases of the problem which have not been solved, cancer, generally speaking, is a curable disease.

The majority of cancers begin in a location where they can be detected in an early stage provided a careful search is made, and, what is more important, cancer usually, if not always, is local in its origin. If the growth is completely destroyed before it becomes disseminated in the body, the patient is cured, certainly, in so far as that particular neoplasm is concerned, and we know that a very large percentage of these patients never develop cancer again.

We must be conservative in our claims, but we cannot accurately deny the essential truth of the preceding statements, nor should we through false pride try to protect ourselves as physicians to the extent of causing needless sacrifice of human life. No one will deny the fact that diphtheria is curable, but if the treatment is delayed, or if it is improper and inadequate, the patient is likely to succumb to the disease; and this is equally true of cancer. Fortunately, however, the diagnosis and treatment of diphtheria is comparatively simple, while the diagnosis and treatment of cancer is extremely complex.

Referring to the treatment of cancer, Ewing[1] makes the following statement: "The time is past when the mere ability to perform the standard surgical operation justifies the surgeon in undertaking the treatment of most forms of cancer. This fact may be emphasized by the report that the average operative mortality for rectal cancer in nineteen American cities of a population of about 100,000 is 45 per cent while the mortality of many specialists is only 5 to 10 per cent."

Ewing[2] also says: "The modern *clinical diagnosis* of neoplastic diseases now involves so many tests, procedures, instrumentations, requiring skill in performance and experience in interpretation as to furnish overwhelming evidence that the diagnosis and treatment of cancer is a broad medical specialty, and cannot longer be regarded as the avocation of the general practitioner or even of the unattached surgeon or radiologist. This view has long been upheld by the American Society for the Control of

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Cancer and it has virtually been adopted by the American College of Surgeons."

CANCER INSTITUTES

With these facts clearly established, it is obvious that every state in the union should have a cancer institute, or special cancer hospital with a full staff of physicians well trained in the various special branches of cancer work. Such an institution must necessarily be heavily endowed and the money should come from private subscriptions, if possible, so as to avoid political influence.

Independence on the part of the institute is highly desirable. Pancoast,[3] in speaking of cancer institutes, says that "most of us cannot but agree that complete university control is often undesirable."

The director of the institute should not have a "single track mind," but he should do what is best for the patient, be it radiation or surgery, or a combination of the two. Since the diagnosis of deep seated malignancy is largely a radiological problem, and since all neoplasms to be removed surgically should receive pre-operative irradiation, and since many of them require prolonged irradiation following the operation, it seems logical for a radiologist to be at the head of such an institute; but, regardless of his specialty, the directing head should have adequate knowledge of the advantages and disadvantages of the operative and non-operative methods of treating neoplastic diseases and a working knowledge of tumor pathology so as to know what method or combination of methods will give the best result in each individual case.

The equipment necessary for the proper diagnosis and treatment of cancer is so complex and expensive and the percentage of charity cases so great as to make it almost impossible for private cancer clinics to exist. Many of the patients are old and dependent and the illness caused by neoplasms and the treatment is often prolonged over a period of weeks or months. During this time the patients are often unable to work, and a large percentage of them require hospitalization. In fact, no other disease requires such costly and complex methods of diagnosis and treatment. Thus the cancer institute with a heavy endowment becomes absolutely essential to successful cancer control.

The cancer institute is not only an ideal place for the care of patients with neoplasms, but for cancer research as well. By co-ordinating these two activities much duplication of effort can be avoided and money can be spent to a greater advantage.

Such an institution should give freely of its facilities to all well-organized cancer services and particularly to smaller clinics doing limited cancer work in general hospitals, and through the efforts of our national medical organizations all hospitals should be limited to the care of such cases of malignancy as they are adequately equipped to handle.

BETTER CANCER STATISTICS

Many other factors are essential for successful cancer control, among them the proper registration of all cancer cases by State Boards of Health, and the establishment of some uniform method of recording cancer statistics which is essential in order that we may more accurately determine what method, or combination of methods, will give the best results in the treatment of the various types of malignancy.

LAY EDUCATION

It would not be so essential for lay organizations to educate the public in regard to cancer if physicians would do their full duty in this respect, but physicians should not overlook the fact that lay people are necessarily concerned in the prevention and cure of cancer, and they demand sufficient knowledge of the subject to enable them to protect themselves and their families. The work in this field by the American Society for the Control of Cancer should receive the full support of our profession, for this organization is conservative, scientific, and impartial.

Some have claimed many nervous manifestations, or *cancer-phobias,* as the result of newspaper publicity and other activities of this and other organizations. The answer to this is simple. Without some excitement of the minds of people we cannot expect fully to arouse them to the necessity of regular routine examinations and to other proper procedures for the prevention and early detection of neoplastic diseases. After all, it must be conceded that it is much easier to cure a case of hysteria than one of advanced cancer.

At the present time there are approximately two million women in America banded together through the General Federation of Womens' Clubs taking as one of their chief objectives a program of educa-

tion on the subject of cancer of the breast and uterus. This organized effort on the part of women in America deserves our whole-hearted support, and it will probably receive the full cooperation of physicians and the laity.

THE REFERRING PHYSICIAN

All who are interested in reducing the mortality from cancer realize that the successful promotion of this work is largely dependent upon the securing of the full cooperation of the family physician.

Physicians, as a class, are willing to cooperate in any organized movement that they honestly believe will reduce the mortality rate of the disease in question. The lack of the proper spirit of cooperation on the part of some in the present movement to reduce the mortality rate of cancer has been due to misinformation or a lack of information. Young men are being graduated from our colleges yearly with comparatively little training in the early diagnosis, prevention, and treatment of cancer. They have not been taught to look upon every cancer case as an emergency. They have not been adequately impressed with the fact that cancer rarely kills by direct extention but by metastases, and that metastases may be caused by forceful manipulations during the examinations of the attending physician. They do not seem to realize the value of pre-operative irradiation or the fact that neoplasms become radio-resistant when irradiated inadequately and that the malady is thereby rendered hopeless in practically all cases of deep-seated malignancy.

Those of us who graduated long ago received our diplomas before very much information was available on the subject of cancer and unfortunately few of us have had the time and money necessary to become well-informed on the subject. This accounts for the fact that some of the most prominent members of our profession are disseminating malignancy by removing lymph glands without pre-operative irradiation, by enucleating primary malignant tumors in their offices, by treating cancer of the cervix with small amounts of radium element and without external irradiation, by sticking electric needles into malignant moles, and by using many other highly improper procedures, to the detriment of their patients, and with the resulting high mortality rate from cancer each year.

We need better dissemination of the present knowledge about cancer by our medical colleges and by the united efforts of the American Medical Association, the American College of Surgeons, and other organizations concerned with this work.

It has been rightly said that the general practitioner is the key man in the control of cancer, and upon him depends the life of every cancer patient applying to him. He can make light of sudden and persistent gastric distress, or cauterize some malignant ulcer and add to the death rate of cancer; or he can examine his patients carefully and, whenever proper so to do, give them advice as to whom to consult. If he mistreats a malignant condition and the patient becomes hopeless, he has to suffer the everlasting abuse of the family for his negligence, for the laity is rapidly learning the truth about cancer and is regularly demanding more information. On the other hand, by establishing a regular routine of periodic examinations among his patients, a physician may greatly increase his own personal income and at the same time save hundreds of lives by causing the removal of pre-cancerous conditions and by the early detection and proper treatment of actual cancer.

Perhaps, the most discouraging thing today in the effort to reduce the mortality rate from neoplastic diseases is the fact that the majority of physicians fail to recognize these conditions until it is too late to save the patient. For instance, Simmons,[4] in reporting three hundred and forty cases of hopeless oral cancer, states that 30 per cent of these patients gave a history of receiving poor advice from the first physicians they consulted, and Brokaw,[5] in making a study of a large number of cases of malignancy, found that "the greatest single cause of delay between consultation and correct treatment was poor advice given by the attending physician." This is an unfortunate state of affairs and one that must be corrected. Physicians, in general, desire to know more about the recent advances in cancer research and as soon as this knowledge is properly disseminated among them the present mortality rate is going to be materially reduced.

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DISCUSSION

DR. J. SHELTON HORSLEY, Richmond: This is an excellent paper. Dr. Clarkson has dealt not with pleasing and flattering things, but with facts, and is driving them home. The general practitioner, of course, is the key man. The radiologist and the surgeon also make mistakes but too often they do not get the chance to do anything if the patient has been mistreated or sent too late. The keynote of cancer therapy now is suspicion. A patient comes to the physician with a little bleeding, supposedly from hemorrhoids, for example, and is given a salve and not even a digital examination is given. Later he comes to the surgeon with cancer. On whom must that death be blamed? Sir James Mackenzie was so impressed with the beginnings of disease that later in his life he founded an institute to study disease in its incipiency. When a patient over thirty-five years of age says he has had a little indigestion for some time, what must be done? Give him a little soda and rhubarb and let it go at that. Of course, if there has been some indiscretion in diet, that should be corrected. But, after an examination, the doctor should have the patient report back to him every few days, and if, after correction of any irregularities of diet and simple treatment, the patient is not well within two weeks, there should be further investigation. That patient should then be sent to an X-ray man in gastro-intestinal work. Such a skilful radiologist can make a diagnosis of 90 per cent of gastric cancers and cancers above the rectum.

A disease that has killed 128,000 people in one year, as cancer did in the United States in 1933, should not be considered casually. The deaths from cancers have practically doubled in the last thirty years.

The danger of delay, then, is obvious. But there is also danger if the physician attempts to do things that Dr. Clarkson so well brought out, such as trying to shell out in his office a little growth that may be suspicious. If he does that he has taken away the last chance that patient has. Giving massage, rubbing in ointment or salve in suspicious bumps is also dangerous. The treating of moles by the electric needle or caustic paste, if that particular case happens to be a melanotic carcinoma, dooms that patient. I have seen all too frequently cases of cancer of the breast that come to me inoperable, and we have found out the patient had incomplete X-ray treatment elsewhere. X-ray treatment then becomes extremely complicated, for the disease, as Dr. Clarkson says, may have become radio-resistant from the improper X-ray treatment.

It is our duty to make the public afraid of cancer. If you do not obtain a condition of cancer fear, education has done no good. That is certainly true in other diseases. When we had much typhoid fever, people become frightened when they had a little diarrhea or felt sick. The water was boiled and the family physician called in. It is the same way now with poliomyelitis. A wholesome fear of any disease is necessary for an early diagnosis. If we can get the family physician to recognize the importance of the early diagnosis of the proper treatment of cancers, thousands of lives can be saved.

FACTORS IN MATERNAL MORTALITY.*

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The maternal mortality rate, which has occasioned so much criticism of the medical profession both from within the profession and from the laity, is one of the major causes of death in females between the years of fifteen to forty-four, causing approximately 8 to 10 per cent of the deaths in this group. For the same female age group, tuberculosis causes the highest percentage of all the deaths (about twice as many as puerperal conditions), heart disease and malignant tumors each account for approximately the same percentage, while pneumonia causes a slightly lower percentage than the puerperal conditions.

In this country we are frequently berated because the puerperal mortality rate remains about the highest of any of the civilized countries. Attention has frequently been called to the differences in compilation of vital statistics in the various countries. Emerson[1] has pointed out that international comparisons are misleading and in the present state of governmental registrations of birth and death, conclusions should not be offered or opinions expressed implying relative excellence in the obstetrical serv-

*From the Department of Obstetrics and Gynecology, University of Virginia.
Read before the Norfolk County Medical Society, Norfolk, Va., May 27, 1935.

ices provided for national population groups. Many factors enter into the differences which are apparent between the mortalities of the various nations. In the first place, no statistical analyses are any more accurate than the original source from which the data were obtained. It is well-known how inaccurate the information on a death certificate may be, so that more accurate and correct information on death certificates would render the statistical tabulations made from them more significant. Often more than one condition may contribute toward a death, so that confusion may occur between the primary and secondary causes. The assignment of the death under the primary and secondary causes is often done differently in the various nations. Tandy[2] has recently investigated this particular phase of the problem by sending a group of certificates to various countries for assignment. Of sixteen countries making the assignment, only Denmark assigned more of the cases to the puerperal group than the United States, while Australia, New Zealand, Netherlands, and Scotland made the assignments approximately the same as the United States, whereas the remaining countries assigned significantly more to non-puerperal groups. Apparently, then, applying the assignment methods of other countries, the rate in the United States would be somewhat lower, although the relative rate is still high and is not explained solely by differences in the assignments of the cause of death. The comparability of maternal mortality rates is affected by the completeness of reporting births, living or still, by the variations in definitions of a live birth or stillbirth, and by the number of children born in multiple births. The racial characteristics and the admixture of races in the various national population groups may explain in some degree the apparent differences in the mortality rates of the various nations. In our own country, for example, the puerperal mortality rate in the colored race is almost twice that in the white, and is an important factor in maintaining our present rate. The high colored death rate also affords an explanation for the tendency to higher rates among the Southern States.

Disregarding the aspersions cast upon the United States because of its unfavorable comparison in maternal deaths with other countries, the fact still remains, as has been proven by the federal and municipal studies, that six to eight pregnant women die for every 1000 live births. This rate has remained more or less constant for years. There are certain general factors which enter into the maintenance of this constant death rate. The diminishing birth rate and the increasing number of abortions are undoubtedly reflected in the maternal mortality rate. Emerson[1] intimates that the declining birth rate is the most significant factor in the maintenance of the present puerperal death rate. Apparently the main cause of the reduction in the birth rate is the parental desire among the upper classes to limit the size of the family for more successful competition in the complex social and economic existence of today. The increased urbanization of the population during the last thirty years has played a part in the desire to restrict the size of the family. This limitation in the number of offspring has been accomplished chiefly by the use of various contraceptive methods and criminal abortions.

Incidently, the decline in the birth rate is of considerable signficance to the sociologists, and the rate in the United States seems to be steadily declining. It is generally estimated that a birth rate of 16.6 per 1000 persons is necessary to maintain a stationary population. The rate in 1915 was twenty-five per 1000—which has steadily declined until in 1932 it was 17.4 which is dangerously near the maintenance rate. As Litzenberg[3] has pointed out, it is startling to realize that there were 123,000 fewer babies born in 1932 than in 1931. It may be noted that the birth rate as published in the Philadelphia survey[4] for 1933 is 14.8 per 1000 persons for that city.

The decrease in the number of births to the healthy women, obviously reduces the total number of live births, and so tends to raise the ratio of maternal deaths to live births. In addition a more significant obstetrical factor is present; namely, the maternal risk dependent upon the parity of the pregnant woman. The greatest death risk is present in women with the first pregnancy and labor and in those with large numbers of previous pregnancies. In the Philadelphia survey approximately one-third of the fatal cases were with the first pregnancy. One result of the limitation in the size of families is the relative increase in primiparous women delivered. In Chicago,[5] in 1933, 40 per cent of the women delivered were primiparous, while in the entire registration area in 1917, the percentage of first

born children was twenty-seven, whereas in 1931, 31.9 per cent of the children were first-born. An important consideration is the relatively older age at which women begin bearing children. The surveys show that the years from twenty to twenty-five are most favorable for child-bearing as far as death risk is concerned, and from twenty-five years onward the maternal mortality rate increases, reaching a maximum around forty years and over. It is apparent then that the relative increase in the number of first-born children, as well as the relatively greater age of the parturient increases the chances of mortality and thus maintains a high death rate.

While the mortality hazard is high with the first pregnancy and diminishes with the second and third, it rises again with the fourth and mounts steadily with each successive pregnancy, reaching a maximum from the tenth pregnancy on. Among the poorly educated portions of the population, particularly in the rural, and in our own state in the mountainous areas, no attempts at family limitations have been made, so that in this group large numbers of closely spaced pregnancies are still the rule. This group with their higher parities is important in the maintenance of the high death rate. In addition to the higher parity risk, the close spacing of pregnancies increases the chances of mortality. The additional risk in too frequent pregnancies has been brought out in the Philadelphia survey in this country and was commented upon in the British report and in the Madras[6] report.

ABORTIONS

An important consideration in the maternal mortality rate is the deaths associated with abortions. There is at times some confusion as to the assignment of abortions and their effect on the puerperal mortality figures. Many deaths following the termination of a previable pregnancy are classified under some title other than abortion, as placenta previa, ruptured uterus, embolus, or puerperal albuminuria and convulsions, all taking precedence in assignment over abortions. Deaths certified as due to criminal abortion are assigned under homicide, and are not included in puerperal deaths, although self-induced abortions are assigned to puerperal causes. The small number certified as criminal abortions indicates that many fatal abortions, which are of a criminal nature, are not so certified, and are reflected in the high percentage of deaths assigned under septic abortions. Many abortions are obviously induced, but whether by the patient or some other individual is often impossible to ascertain, yet this is the only distinction between assignment of these deaths to homicide or abortions. Eliminating those deaths classified as homicide and those classified under the other puerperal causes of death which take precedence over abortions, one is still left with the amazing fact that approximately one-fourth of all the maternal deaths follow abortions. The actual percentage would be still higher if those classified as homicide and those classified under other puerperal causes were included. This incidence of about 25 per cent was demonstrated both by the Federal[7] survey of fifteen states and by the Philadelphia survey. Approximately three-fourths of the deaths associated with abortions were due to sepsis, and deaths due to septic abortions constituted approximately one-half of the deaths due to puerperal septicemia, which, when including septic abortions, is the greatest single cause of maternal mortality. It is obvious then that abortion is one of the big problems to be attacked if any appreciable improvement in the maternal mortality is to be shown. It is obviously impossible to determine the number of induced abortions, but it has been variously estimated as about one to each live birth, or about one of every two or three pregnancies. Adair[5] remarks that it is not at all improbable that there are from 750,000 to 1,000,000 annually in the United States and points out that the deaths following abortions have tended to neutralize the decrease in maternal deaths which have resulted from improved obstetric practice. It is apparent that the desire to limit the size of families, even by measures so radical as the induction of abortion, not only leads to a diminishing birth rate, but also to an increased mortality rate.

If the estimate of the number of abortions annually in this country is at all correct, it certainly indicates that prevention of offspring, limitations in size of family and spacing of pregnancies will be secured, even at such a hazard as induced abortion, and surely justifies the use of contraceptive measures, as much safer procedures than induction of abortion, to attain these desires.

PRENATAL CARE

In all of the maternal mortality studies antenatal supervision of the pregnant woman appears to be

significant in the reduction of the death rate. While it will by no means prevent all of the catastrophies to which the pregnant and parturient woman is subject, it does seem to be a factor commonly lacking in the fatal cases. In the Federal survey 54 per cent of the fatal cases had no prenatal examination by a physician, 75 per cent had either poor and inadequate prenatal care or none at all, while less than 1 per cent received adequate prenatal care. In the Philadelphia survey approximately 56 per cent received either inadequate or no prenatal care. Numerous state and local investigations have repeatedly substantiated these figures.

Prenatal care to be reasonably successful should begin in the second month of pregnancy with a complete history and physical examination, pelvic mensuration, blood count and blood Wassermann reaction and a weight record. Abnormal findings should be evaluated and proper treatment instituted. Advice should be given regarding hygiene, diet, rest, exercise, bowel elimination and dental care. The weight and blood pressure should be recorded and the abdomen and urine examined monthly during the first seven months, and every two weeks thereafter, until the last month, when weekly observations are advisable. Other and more frequent examinations should be made and advice given as indications arise. The importance of examinations early in pregnancy should be emphasized, as this is the time to detect the presence of those conditions which contra-indicate the continuation of the pregnancy. That this type of care, with an intelligent interpretation of the findings and the institution of the generally accepted advice and treatment of abnormalities when present, would reduce the maternal and fetal mortality, is evidenced by the conclusions from the several surveys.

This type of antenatal supervision unfortunately is not given to all classes of our population, either because of cost, distance, or lack of appreciation of the value of such care by expectant mothers and perhaps an occasional physician. The indigent rural group of our population offers a most difficult problem and to educate this group to the need of prenatal care and to the appreciation of obstetrical hazards, and at the same time to have facilities available for their care, seems almost impossible.

INFECTION

The two major single causes of maternal deaths are infection and toxemia. In Virginia, either of these conditions alone causes approximately as many deaths as all of the other puerperal causes together. If there were no deaths in this State due to these causes, the puerperal mortality rate would be reduced approximately by two-thirds. It would seem that any attempt to reduce the mortality should be directed toward the prevention and treatment of these two conditions. Puerperal septicemia, including septic abortions, is the most frequent single cause of puerperal deaths. The 1929 revision of the International List of Causes of Death separates septic abortion from puerperal septicemia, and with this segregation, infection ranks second to puerperal albuminuria and eclampsia as a cause of death.

Contamination is still the most important cause of puerperal infection, although trauma in the birth canal, auto-infection, blood loss, and immunity and resistance are significant factors, while the virulence, diffusibility and specific selective influence of microbes are attributes which frequently determine the fate of the infected puerpera. The importance of contamination has been well recognized since White, of Manchester, Gorden, of Aberdeen, Holmes in Boston, and Semmelweiss in Vienna, focused the attention of the medical profession on the role of contagion in puerperal sepsis. Autogenous infection is undoubtedly a possibility, as instances of infection occur in which there were neither examinations, manipulations, nor visible injury to the pelvic structures. Secondary factors which predispose to infection are prolonged labor, pelvic impaction with devitalization of tissues, general exhaustion and dehydration. The incidence of bacterial invasion seems proportionate to the duration of time between the rupture of the membranes and the end of labor. Excessive blood loss at the time of labor tends to lower the general resistance and favors the development of puerperal infection. Other miscellaneous conditions which predispose toward infection are prolapsed cord or fetal parts, low implantations of the placenta, malpresentations, retained placental tissue, and lacerations of the birth canal. In the final analysis the outcome of an infection is determined by the immunity and resistance of the individual infected and the virulence of the infecting organism. Many of the physiologic changes during pregnancy would seem to increase the individ-

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ual's resistance, while practically all of the pathological conditions which may appear are associated with lowered tissue resistance to infection, particularly in the chronic diseases complicating pregnancy, in toxemia, and in hemorrhages complicating pregnancy and labor.

The old adage that "prevention is better than cure" is well exemplified in puerperal infection. During the prenatal period efforts should be made to eliminate any foci of infection, while in the last six weeks of pregnancy sexual intercourse and tub baths should be forbidden, and vaginal examinations should then be done only under aseptic conditions. During labor, examinations should be reduced to a minimum compatible with an intelligent conception of the progress of labor, and vaginal examinations should be done only with strict surgical asepsis. Vaginal instillation of an antiseptic in instances of long labor and early rupture of membranes is worthy of trial. The late Dr. Polak spoke of the eleven sources of infection—"ten fingers and the throat," so that attendants particularly with respiratory infections should wear masks covering the mouth and nose. Operative procedures should be reduced to a minimum and executed with aseptic precautions, while after delivery every effort must be made to prevent cross infections, and physicians and nurses coming in contact with infections should be cautious in attending obstetrical cases.

In the Philadelphia survey septic abortions accounted for 22 per cent of all the puerperal deaths, and a more conservative attitude and less frequent curettage in infected abortions would doubtless improve the results. In addition to symptomatic treatment, postural drainage, and general hygienic measures, at the present time small repeated blood transfusions seem to be the most valuable therapeutic measure in puerperal infection. Vaginal douches and curettage of the uterus should ordinarily be avoided as they are quite apt to be more detrimental than beneficial. Operative procedures for puerperal infection should be confined to the drainage of localized collections of pus, which ordinarily do not occur until late in the disease.

TOXEMIA

By the term toxemia of pregnancy one refers to those conditions occurring in the latter part of pregnancy associated with hypertension, albuminuria, edema and visual disturbances with or without convulsions. Deaths occuring in this group are assigned to puerperal albuminuria and eclampsia. This group accounts for approximately 20 to 25 per cent of the puerperal deaths in the country as a whole. In the Philadelphia survey it only accounted for about 12 per cent, while in the State of Virginia prior to 1933 it caused roughly 33 per cent of the maternal deaths. It is gratifying to note that in 1933 in Virginia[8] it caused 25 per cent of the deaths which is about the average for the entire country. Incidently the total puerperal death rate for the State in 1933 was 6.2, which, with the 1927 rate of 6.1, are the lowest rates for the State since 1920. The percentage mortality due to puerperal albuminuria suggests that portions of our State population for one reason or another is not obtaining adequate prenatal care. Antenatal examination of blood pressure and urine and weight records often indicate the appearance of a toxemia. Prenatal care has probably not appreciably reduced the incidence of toxemia, but it has permitted the detection of toxemia before the appearance of convulsions, and, by a judicious termination of pregnancy has undoubtedly saved some lives which otherwise may have been lost.

Examinations early in pregnancy will often reveal the presence of a complicating hypertension and nephritis, and termination at that time may prevent a serious or fatal complication in the latter months of pregnancy. It seems fairly certain that pregnancy with nephritis definitely shortens the life expectancy of the mother. The additional metabolic strain upon the maternal organs and the associated increase in the amount of permanent renal damage is avoided by an early termination of the pregnancy, and the possibility of a shortened life expectancy is thereby lessened. In individuals with nephritis the avoidance of future pregnancy is just as important as the termination of the immediate pregnancy, so that the use of contraceptives or operative sterilization is indicated.

A pregnant woman with hypertension, albuminuria, and edema should be hospitalized and if, with dietary limitation, rest, adequate intestinal elimination and sedatives, the signs and symptoms get progressively worse, the pregnancy should be terminated by whatever method seems most advisable in that particular instance. After the appearance of convulsions, a conservative method of treatment will undoubtedly save the most lives in the hands

of the average physician. It seems wiser to reserve Cesarean section for those instances in which some other factor such as accidental hemorrhage or pelvic dystocia indicates abdominal delivery or in the treatment of the occasional case of pre-eclampsia before the appearance of convulsions.

It is reasonable to presume that adequate intelligent prenatal care and a judicious management of toxemic patients in the early stages of the complication would appreciably reduce the maternal deaths from puerperal albuminuria and eclampsia in this State where it causes about one-third to one-fourth of all the deaths, whereas in the country as a whole it causes about a fifth, and in the city of Philadelphia about one-eighth. It is not intended to insinuate that eclampsia is always a preventable condition, for it may occur even with normal urine and blood pressure, or may appear suddenly in a fulminating manner, although in the vast majority of instances the onset is sufficiently gradual to permit detection and early treatment.

The conditions already discussed, abortions, sepsis, and toxemia, account for about two-thirds of the maternal deaths. The next two most frequent causes of mortality are accidents of childbirth and puerperal hemorrhage—each of which accounts for about 10 per cent of all the deaths. The remainder of the deaths are assigned under the headings of phlegmasia alba dolens, embolus, sudden death (5 per cent), ectopic gestation (4 per cent), other toxemias of pregnancy (4 per cent) and accidents of pregnancy (1 per cent),—each accounting for 5 per cent or less of the deaths.

DISCUSSION

It seems apparent that obstetric mortality could be decreased, but that it can be entirely eliminated is too utopian for even the most optimistic. Many of the causes of death are entirely non-preventable and unavoidable, and fatalities will occur even in the most ideal surroundings and under the most expert attention. In the light of our present knowledge, infection is not entirely a preventable disease and at times occurs under conditions which seem clinically normal.

The deaths from ectopic gestation, abortion, and accidental hemorrhage seem hardly due to poor obstetric practice, yet they account for about one-third of the deaths. Certain of the accidents of childbirth (labor) are undoubtedly preventable, in that they represent errors in judgment, but perfection in judgment is a quality hardly attributable to mere mortals. In reviewing instances of fatalities and grouping them as preventable and non-preventable, the old axiom, "hindsight is better than foresight," must be remembered.

There has been much popular and medical propaganda for a quick and easy delivery, painless childbirth, often at an appointed time, and often at the expense of a safe one. This has resulted in the indiscriminate use of numerous analgesic drugs and agents and the frequent injudicious resort to operative procedures. The physician has but little control over many phases of the maternal mortality problem, but he should employ the generally approved methods of prevention and treatment and discontinue those methods which are practically unanimously condemned, such as, for example, vaginal examinations without asepsis, injudicious obstetrical operations in improper surroundings and without justifiable indications, forceps operations and breech extractions through undilated cervices, manual dilatation of the cervix in eclampsia and placenta previa and repeated curettage in puerperal infection and septic abortion. Perhaps the wisest obstetrical attitude to adopt is one of intelligent conservatism, accepting Litzenberg's[3] definition of a true conservative as one who knows how, when, and particularly when not to be radical. Possibly the advice which Mr. Shandy, in Lawrence Sterne's "Tristram Shandy," gave to Dr. Slop may even still be appropriate to us,—"Stay thy obstetric hand, return it safe into thy bosom to keep it warm."

SUMMARY

1. Several factors influence the comparability of maternal mortality statistics of various nations.

2. Some conditions which at present tend to maintain a high maternal death rate are the diminishing birth rate, the increasing number of abortions, the relative increase in the number of primiparous women, the relatively older age of the parturients, and, in certain groups of the population, large numbers of closely spaced pregnancies.

3. Deaths associated with abortions account for approximately one-fourth of the maternal deaths.

4. Antenatal supervision of the pregnant woman tends to reduce the death rate and is often lacking in the fatal cases.

5. The two major causes of maternal deaths are

infection and toxemia. An aseptic technique would no doubt reduce the deaths from infection, while prenatal care, early treatment and a judicious termination of pregnancy would lessen the number of fatalities from toxemia.

6. Accidents of childbirth and puerperal hemorrhage each account for about 10 per cent of the deaths, while a variety of conditions account for the remainder.

7. Many obstetrical deaths in the light of our present knowledge are non-preventable and unavoidable and are not necessarily due to poor obstetric practice.

8. Reasonable conservatism based on a knowledge of physiological principles and pathological conditions is without doubt the wisest obstetrical attitude for the average physician.

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REMARKS ON THE DIAGNOSIS OF CORONARY THROMBOSIS.*

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During the past decade information concerning coronary thrombosis has spread so rapidly through the profession that all physicians have become familiar with its clinical manifestations, and are acutely alive to the recognition of this frequently occurring and often tragic condition. Ten years ago a consultant more frequently suggested the diagnosis; today a consultant is seldom called upon to suggest the diagnosis. Since the diagnosis now seems easy, and since also all of us are at once inclined to attribute almost every sudden, severe pain occurring in the chest of a person of middle age or older to occlusion of a coronary artery, it seems appropriate to call attention again to other diseases that may give a similar clinical picture. It is not our purpose to discuss in detail the differential diagnosis of coronary thrombosis; we wish only to mention six diseases which in our experience have been easily confused with it. Often they are distinguishable from coronary thrombosis only with difficulty, and sometimes not until autopsy discloses the real state. These diseases are chronic cholecystitis with stones, pulmonary emboli, cardiac thrombi, spontaneous pneumothorax, pericarditis, and rupture of the aorta with the formation of a dissecting aneurism. How closely the symptoms and signs sometimes observed in any one of these diseases may simulate those observed in the usual case of coronary thrombosis may better be emphasized by giving summaries of case records.

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I. CHRONIC CHOLECYSTITIS WITH STONES

The difficulty of differentiating coronary thrombosis and chronic cholecystitis with stones occasionally arises even though the similarity of the symptoms has often been discussed and is generally well known. Sometimes the course of events quickly dispels uncertainty, while at other times it is almost impossible to make an accurate diagnosis until the patient has been observed over a period of time as in the following case.

Case 1. A white lady, 58 years of age, was ad-

mitted to the hospital in March, 1929, complaining of weakness, palpitation and pain around the heart. She stated that the pain which she had had frequently for two months, always began under the sternum, radiated into the left shoulder and arm, and was accompanied with a sensation of constriction in the chest. The pain was induced by exercise and readily relieved by rest. She gave a history also of having had indigestion for several years, gas and fullness after meals, and frequently a burning sensation in the epigastrium that was relieved by milk. The past history was negative except for an attack of gall-stone colic followed by jaundice twelve years previously, and of influenza of two weeks' duration one month prior to the onset of pain in the chest.

The examination revealed the following findings: A well-nourished woman inclined to obesity, hypertrophied and infected tonsils, increased retrosternal dullness and transverse diameter of the heart on percussion, the first heart sound of poor quality, accentuation of the aortic second sound, a rate of 90 per minute, blood pressure 148 systolic and 90 diastolic, tenderness in the right hypochondrium and also in the right lower dorsal region. The blood counts, blood urea, and urinalysis were normal. The electrocardiogram showed left axis deviation. The roentgen-ray examination of the chest showed a moderately enlarged heart and a slightly dilated aorta. The cholecystogram showed a faint outline of the gall-bladder, and a dense, circumscribed shadow suggestive of a gall-stone.

Course in the Hospital: During the first ten days the patient's condition remained unchanged. The pains simulating angina pectoris recurred every day or two. On the eleventh day she complained of pain in the epigastrium and under the lower part of the sternum. This pain persisted throughout the next twenty-four hours, requiring morphine several times. A few hours after the onset of the pain the temperature arose to 99.8° F., the pulse rate to 110, and the leucocytes to 14,500. On the following day a mass was palpable in the right hypochondrium. It increased rapidly in size and was soon regarded as an hydropsical distention of the gall-bladder. Under local anesthesia the abdomen was opened; the gall-bladder, greatly distended and gangrenous, was aspirated and opened, several large calculi were removed, and a drain inserted. The patient recovered satisfactorily and left the hospital one month later.

Subsequent Course: After leaving the hospital the patient continued to improve for six months when she again began having pains simulating angina pectoris. These pains recurred frequently but were usually readily relieved by the inhalation of amyl nitrite; occasionally morphine was required. During this period also she had two attacks of sudden, severe and prolonged pain beneath the sternum and in the epigastrium, accompanied with other symptoms and signs usually observed in coronary thrombosis.

In the year following recovery from what appeared to be the second attack of coronary thrombosis the patient had pain in the chest less frequently, and when it occurred it radiated, according to her statement, from the precordium to the gall-bladder region where it localized instead of radiating to the shoulder and into the arm. Not only did the pain occur less frequently, but there was also an improvement in her general condition. Still further improvement followed the removal of the tonsils. The gradual improvement, the patient's ability to withstand exercise more comfortably, the improvement in the quality of the heart sounds, the change in the direction in which the pain radiated, and numerous electrocardiograms made during the three and one-half years the patient was under observation, none of which showed any deviation from the normal except left ventricular preponderance, raised the question whether any of the pains in the chest originated in the heart. Further observation convinced us that they were due to gall-bladder disease rather than the heart. We then proposed removal of the gall-bladder, to which the patient readily consented. After two weeks of preliminary treatment a badly diseased gall-bladder, bound down by adhesions and containing many calculi, was removed. Convalescence was uneventful. In the two and one-half years that have elapsed since the operation the patient has not had an attack of pain simulating either angina pectoris or coronary thrombosis. According to her statement, she feels better than at any time in ten years.

Comment: While it is well known that gall-bladder disease occasionally causes pain simulating angina pectoris and still more often pain simulating that of coronary thrombosis, yet, as far as we

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know, it rarely causes in the same individual pain which frequently is typical of angina pectoris but on other occasions is typical of pain due to occlusion of a coronary artery. At the time of the original examination we made a diagnosis of cholecystitis with stones, and also of myocarditis secondary to coronary sclerosis. The occurrence later of two attacks simulating coronary thrombosis seemed further evidence in favor of coronary artery disease. The clinical course following the second attack, however, was more clearly that of cholecystitis. That the patient has myocarditis cannot be doubted, still it is not due, as far as we can tell, to coronary artery disease. We believe from observation over a prolonged period of time that the myocarditis is due to the absorption of toxin from the gall-bladder and the tonsils, and that it was aggravated by the influenza.

II. Pulmonary Emboli

Pulmonary emboli occur frequently during convalescence from operations, burns, and fractures. Under these circumstances pulmonary emboli are more likely to be the cause of pain in the chest, fever, leucocytosis, and shock than coronary thrombosis. While the diagnosis is usually easily made, yet in some instances it may be very hard to make as in the following cases.

Case 2. A lady, 50 years of age, was operated upon for chronic appendicitis, a chronically diseased appendix being removed. A careful examination when the patient was first seen one year previously and again one week prior to the operation, revealed no evidence of disease except in the appendix. After the operation convalescence progressed uneventfully until the sixteenth day when the patient suddenly felt pain in the left lower chest anteriorly and in the left shoulder. Soon she complained of a sensation of weight on the chest, and of shortness of breath. The heart rate was 120 per minute, and the sounds were distant. Within four hours the blood pressure, previously within the normal range, had dropped to 106 systolic and 60 diastolic. The patient had an ashen appearance, and she was greatly prostrated. Twelve hours later a rather loud friction rub was heard over the apex of the heart. It disappeared in six or eight hours. Fine rales were heard in the bases of both lungs, though they seemed to be more numerous in the left base.

For a week the patient continued to have a sensation of tightness in the chest, the temperature fluctuated from one to two degrees above the normal, and the pulse rate was moderately accelerated. On the twenty-fifth day after the operation swelling of the leg with tenderness in the groin pointed to thrombo-phlebitis. The swelling gradually subsided, the mental state improved, the temperature and the pulse rate returned to the normal, and the patient left the hospital in good condition eleven weeks after the operation.

Comment: Prior to the time when the leg became swollen and tender we thought the patient had coronary thrombosis. The character of the attack, the appearance of the patient, the fall in the blood pressure, the increased heart rate, and the friction rub seemed convincing. On the other hand, upon hearing about the illness without an opportunity to see the patient, one might well argue for pulmonary embolism. The symptoms and course of events during the illness were typically characteristic of thrombo-phlebitis with pulmonary embolism. The diagnosis of pulmonary embolism would have been made in the beginning had it not been for the friction rub over the apex of the heart. After seeing the case the question arose, does the presence of a friction rub which is heard over the apex of the heart or along the left border of cardiac dullness make it necessary to abandon the diagnosis of pulmonary embolism with infarction when other signs and symptoms are typical of the condition? We revolved this question frequently in mind until the observation of a somewhat similar case two years later convinced us that a pleuro-pericardial friction may occur with infarction of the lower lobe of the lung under circumstances in which the possibility of the occurrence of coronary occlusion is more remote, if not indeed beyond reasonable expectation. The main facts about the second case are as follows.

Case 3. A man, 48 years of age, had suffered for two years from recurring attacks of severe pain in the upper abdomen which were diagnosed as gall-stone colic. Under conservative treatment there was no improvement; in fact the attacks came on more frequently. The patient was a large-sized, though not obese man, in good physical condition. Two and one-half weeks after the removal of the gall-bladder, which contained stones, he suddenly

felt pain near the heart and in the left shoulder. The pain became more intense, and it was accompanied by a sensation of tightness in the chest. The temperature, which had been normal for five days, arose to 101°, the pulse rate to 120. The patient soon became cyanotic. The heart sounds were distant, the blood pressure one hour after the onset of pain was 110 systolic and 60 diastolic. The next day a loud friction rub was heard over the apex of the heart. On the second day the friction rub could be easily heard over the precordium and in the axilla. Later in the day we elicited signs of consolidation in the lower lobe of the lung. In the meantime the patient had coughed rather frequently and had expectorated blood several times. The diagnosis of pulmonary embolism followed by pneumonia was clear.

Four days after the onset of pain the friction rub disappeared. From that time the patient steadily improved. Soon after he began walking he noticed swelling in the calf of the left leg, which, however, was easily controlled by a pressure bandage. One year later he was, according to his statement, entirely well. He had been active and had had no symptoms suggestive of heart disease. On examination the heart was found to be normal. An electrocardiogram, like those made while he was in the hospital, showed no abnormality.

Comment: In both of these cases the intensity of the pleuro-pericardial friction rub and the large area over which it was heard would seem to have been sufficient to differentiate it from the pericardial friction due to coronary thrombosis. When a pericardial friction rub is heard over an infarcted area of heart muscle, it is faint, often heard with difficulty, well localized, and disappears in a few hours.

Although pulmonary embolism occurs more often in the smaller branches of the pulmonary artery, still in some instances a large embolus lodges either in the trunk of the artery or in one of its main branches, causing a high degree of occlusion.

Case 4. On May 23, 1935, we were asked to see a man, 56 years of age, who was thought to be having a "heart attack." He had been in the hospital recuperating from fractures of the right clavicle, humerus, and six ribs, the result of an injury received on April 4. Convalescence had progressed uneventfully until the forty-ninth day when he suddenly felt fainty while walking down the corridor. He was immediately put to bed. When we saw him a few minutes later he complained of a griping pain beneath the upper half of the sternum and a feeling of suffocation. The examination revealed frequent and shallow respirations, marked pallor of the skin, cyanosis of the finger-nails, cold hands and feet, a small, thready pulse, a heart rate of 150, distant sounds, and blood pressure 120 systolic and 80 diastolic. The brachial arteries were not specially sclerotic. Obviously the man was quite sick.

One-fourth grain of morphine given twice during two hours partially relieved the pain and enabled him to breathe more easily. Three hours after the onset the heart rate still was 150, the quality of the sounds was fairly good, the pulmonic second sound was moderately accentuated, the blood pressure was 90 systolic and 70 diastolic. The lungs were clear except for fine rales in the bases. By the middle of the afternoon the patient's color had improved. The temperature had risen to 99.6° F., and the leucocytes to 18,800. The electrocardiogram made at this time showed a sino-auricular rate of 150, a prominent S wave, and a slightly low origin of the ST interval in Lead III. At 7 P. M., ten hours after the onset, the patient was comfortable, the heart rate was 130, the quality of the sounds was fairly good, the rhythm was regular, the blood pressure was 90 systolic and 74 diastolic. Thirty minutes later the patient died. Permission for an autopsy was refused.

Comment: The symptoms and signs observed in this case were at first attributed to coronary thrombosis. Such a diagnosis would seem justified in view of the sudden onset, the character and location of the pain, the falling blood pressure, the increased heart rate and distant sounds. On the other hand, there is the history of an injury resulting in the fracture of several bones forty-nine days before the occurrence of the symptoms and signs described, and certain electrocardiographic changes, which, upon close inspection, were found to be different from those usually associated with occlusion of a coronary artery. These changes were practically identical with those described recently by Paul D. White[1, 2] in the electrocardiograms of his patients with acute cor pulmonale or dilatation of the pulmonary artery and the right side of the heart with or without failure, resulting from great obstruction to the pulmonary circulation, and best exemplified by mas-

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sive pulmonary embolism. We believe our patient had a massive embolus in the trunk of the pulmonary artery or in one or both of its main branches, causing great obstruction to the pulmonary circulation and failure of the right side of the heart.

III. CARDIAC THROMBI

Case 5. On March 6, 1934, we were asked to see a colored woman, 42 years of age, who was suffering severe pain in the chest. She was suddenly seized with substernal pain and a sensation of constriction in the chest thirty minutes before my examination twenty-three days after the reception of first, second, and third degree burns on the left arm and hand, and on both lower extremities. The examination revealed a normal blood pressure, a heart rate of 130, distant sounds, gallop rhythm, and a moderate degree of shock. Morphine given several times during the day partially relieved the pain. On the following day the patient still had pain and difficulty in breathing. Except for a low blood pressure, 90 systolic and 60 diastolic, the physical findings were the same. Forty hours after the onset, the pain became agonizing, and death occurred thirty minutes later.

The autopsy revealed a normal-size heart that had stopped in systole. The right auricle, however, was distended. In the inferior vena cava a dense, well-organized thrombus was found, beginning about one inch from the entrance of the vena cava into the auricle. The thrombus extended through the auricle and the auriculo-ventricular orifice, almost completely occluding the latter.

Comment: Coronary thrombosis seemed to be the only reasonable clinical diagnosis in this case. On the other hand, the history of burns followed in twenty-three days by pain in the chest should have made us think of the possibility of the occurrence of a massive embolus either in the heart or in the large pulmonary vessels.

IV. SPONTANEOUS PNEUMOTHORAX

Spontaneous pneumothorax may cause symptoms resembling closely those of coronary thrombosis when the opening in the alveoli and in the visceral pleura occurs near the heart.

Case 6. During the night of June 10, 1929, we were called to see a man, 47 years of age, who was suddenly seized with pain in the region of the heart a few minutes after retiring. The pain, according to his description, was tearing in character and accompanied with difficulty in breathing, and a cough. Later he gave the history of being easily fatigued for several months, of palpitation and dyspnea on exertion, of frequent vertical and occipital headaches, and of susceptibility to colds.

The examination revealed a well-nourished middle-aged, apprehensive man, breathing with difficulty, cyanotic, and coughing rather frequently. The pulse was rapid and feeble, the skin cold and clammy, the heart sounds were distant, the rate 136, the blood pressure was 110 systolic and 70 diastolic. Obviously the patient was in a state of shock. One-fourth grain of morphine gave partial relief, and still further relief was obtained from a sixth of a grain given an hour later. Two hours after the onset of pain the heart rate was 120, the sounds were distant, the blood pressure 100 systolic and 60 diastolic, the respiratory sounds were diminished in intensity—in fact, almost inaudible in the lower lobe of the left lung—and slightly increased in the third and fourth interspaces. The percussion note was tympanitic over the left lower half of the chest.

Subsequent Course: The patient continued to have pain under the sternum and in the precordium for four days, although after recovering from shock he had little difficulty in breathing. Twenty hours after the onset of pain we heard a friction rub somewhat crunching in character in the fourth and fifth interspaces along the left border of cardiac dullness. The temperature was 100.2° F., respirations 28, and the pulse 115. The friction rub disappeared in a few hours. Almost as soon as the pain subsided entirely the patient stated that he felt well. While the pulse rate continued to be moderately increased, yet the quality of the sounds indicated a good muscle element of the first heart sound. In a week the lower lobe of the lung was aerating well. The intensity of the breath sounds in the second and third left interspaces was increased. Three weeks after the occurrence of pain a roentgen-ray examination of the chest showed evidences of tuberculosis in the second, third, and fourth interspaces. The cardiac shadow was normal in size.

Comment: In this case the manner of onset, the character of the pain, the distant heart sounds, and shock suggested the possibility of coronary thrombosis. Within a few hours the symptoms and signs indicated pneumothorax, although the friction rub

still caused some confusion, especially as it was of short duration and was faintly heard in the area in which pericardial friction due to myocardial infarction is usually heard. The subsequent clinical course and findings indicated that the patient had tuberculosis with spontaneous pneumothorax.

V. PERICARDITIS

Severe pain beginning suddenly beneath the upper half of the sternum and radiating to the neck and shoulder, or a dull aching pain localized beneath the lower end of the sternum and in the epigastrium, may be the first symptom of pericarditis. As in coronary thrombosis, the pain may be followed soon by fever, leucocytosis, difficulty in breathing, heart sounds of poor quality, cyanosis, and evidences of congestive failure. When pericarditis develops suddenly in a person of middle age or older it may be easily confused with coronary thrombosis.

Case 7. A medium-size colored man, 42 years of age, was admitted to the hospital complaining of pain over the heart and beneath the upper part of the sternum. He stated that the pain, which was tearing in character, began several hours earlier while he was working on the street. He obtained some relief by lying down but in an hour or two it became more severe and radiated to the neck and shoulder. His past history was negative except for frequent but mild attacks of sore throat, and for pains and soreness in the muscles and joints of short duration several times in the preceding fifteen years. He had worked as a laborer most of the time without having any symptoms referable to the heart.

The examination revealed infected tonsils, enlarged glands under the angles of the jaws, slight increase in the transverse diameter of the heart, a moderately increased heart rate with an occasional extrasystole, distant sounds, accentuation of the pulmonic second sound, a soft systolic murmur at the apex, blood pressure 110 systolic and 60 diastolic, and slight tenderness along the left costal margin. The temperature was 100.2° F., the respirations 30, and the leucocytes 17,800.

Course in the Hospital: On the day following his admission to the hospital a moderately loud to and fro friction rub was heard in the third and fourth interspaces to the left of the sternum, fading out towards the apex. The pain and difficulty in breathing continued almost unabated for about thirty hours, after which the patient became fairly comfortable. The friction rub disappeared soon after the pain diminished in intensity. Almost coincident with the disappearance of the friction rub, the heart sounds became more distant, a gallop rhythm was heard, pulmonary congestion increased, and fluid accumulated in the pleural cavity. Thoracentesis on the sixth day in the hospital yielded 350 c.c. of turbid, yellow fluid. The patient gradually grew worse and died twelve days after the beginning of his illness.

The autopsy showed rheumatic pericarditis, about 50 c.c. of turbid fluid in the pericardial sac, moderate hypertrophy of the heart, a few small vegetations on the mitral valves, and passive congestion of both lungs and of the abdominal viscera.

Case 8. A white man, 55 years of age, came to the office complaining of shortness of breath. He stated that although he had not felt strong for several weeks, he had continued working. Three nights before coming to the office he returned home from a strenuous trip, and an hour later he was seized with a dull, aching pain under the lower part of the sternum and in the epigastrium. Soon he sent for his physician, who, according to his statement, gave him two hypodermics of morphine within two hours. He continued to have some pain for about ten hours when it subsided entirely. Thinking he was well soon after the pain ceased, he went to his store, but in a short time he felt very weak and began having shortness of breath. This symptom gradually became more pronounced.

He gave a history also of having had a mild sore throat of three days' duration two weeks previously and of pneumonia in the left lung one year previously.

The examination revealed an obese man, breathing with difficulty, infected tonsils, moist rales in the bases of both lungs, moderate enlargement of the heart, a rate of 95, very distant sounds, accentuation of the basal second sounds particularly the pulmonic, gallop rhythm, blood pressure 138 systolic and 86 diastolic, moderate enlargement of the liver, and hypertrophy of the prostate gland. The electrocardiogram showed changes similar to those that occur in coronary thrombosis.

Course in the Hospital: The patient was immediately hospitalized and the treatment for cardiac decompensation instituted. On the second day the area of cardiac dullness was found to have increased,

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the transverse diameter measuring 18 cm. to the left and 6 cm. to the right of the midline, the heart sounds were almost inaudible; the blood pressure was 106 systolic and 70 diastolic. Dullness and marked diminution of the intensity of the breath sounds were found over the left lobe of the lung. The roentgen-ray examination showed a marked enlargement of the heart, the appearance of the shadow resembling that of pericardial effusion. It also showed evidences of a small amount of fluid in the left pleural cavity. The blood urea was 48 mgs. per 100 c.c. of blood; the urinalysis showed a low specific gravity, albumin, and a few hyaline casts; the leucocytes numbered 15,600, and the temperature was 99.4° F.

Pericardicentesis from four different points on the fourth day failed to yield fluid. Thoracentesis yielded about 200 c.c. of yellow fluid. Despite all efforts to make the patient comfortable, he became more uncomfortable, respirations became more difficult, and he died on the seventh day.

The anatomical diagnosis was thickened pericardium, pericarditis with sero-fibrinous effusion—about 60 c.c.,—hypertrophied heart, a slight degree of sclerosis of the coronary arteries, no infarcts or scars in the myocardium, left pleural effusion, and passive congestion of the lungs and of the abdominal viscera.

Comment: The manner of onset and the character of the pain in both cases were typical of pain due to occlusion of a coronary artery. In the first case it became apparent on the second and third days that the patient had pericarditis, which, in view of his past history, was considered to be rheumatic in origin. In the second case, however, the pain seemed much more likely to be due to coronary thrombosis, although certain signs such as the very distant heart sounds, the perceptible increase in the area of cardiac dullness soon after the patient came under observation, and the silhouette of the heart suggested the occurrence of pericarditis with effusion. Without an autopsy it would have been impossible to say definitely whether the patient had pericarditis with effusion or coronary thrombosis.

VI. Rupture of the Aorta

Several instances of rupture of the aorta with the formation of a dissecting aneurism have been reported in recent years, and in the majority of cases a diagnosis of coronary thrombosis was made prior to death.

Case 9. A white laborer, 63 years of age, was seen at home complaining of substernal pain which began eighteen hours earlier while he was at work. He continued working for a short time when the pain because so tearing in character that he was forced to rest. Then he was taken home and put to bed. After resting for a while he became more comfortable, the pain became dull aching in character and it was accompanied with a sensation of tightness in the chest. This was not sufficient, however, to prevent him from sleeping at short intervals. The next morning he was more comfortable when lying still, though slight exertion such as moving in bed increased the pain. He stated that he had had some shortness of breath and momentary sensations of pressure in the chest following much exertion during the preceding year.

The examination revealed a large-size man moderately cyanosed, numerous fine rales in the lower lobe of each lung, a moderate increase in the transverse diameter of the heart and in the area of supracardiac dullness, a heart rate of 90, distant sounds, an occasional extra systole, a soft systolic murmur at the apex, accentuation of the aortic second sound, moderate arteriosclerosis of the peripheral arteries, blood pressure 180 systolic and 96 diastolic, and a slight enlargement of the liver.

Subsequent Course: For several days the patient continued to have the sensation of tightness and the dull aching pain which at frequent intervals became severe, requiring morphine. He was given digitalis and kept quiet in bed. After a week the pain had ceased, the symptoms of congestive failure had improved, and the blood pressure had dropped to 150 systolic and 90 diastolic. This was the lowest blood pressure reading.

Two weeks after the onset of the pain the patient had a recurrence which not only was more severe but it was felt over the entire precordium. One-half a grain of morphine given at once and smaller doses repeated at frequent intervals partially relieved the pain. The heart sounds, which in the beginning of this attack could be heard distinctly, became more and more indistinct, the rate increased, the rhythm became more and more irregular, the aortic second sound became more accentuated, the blood pressure was 186 systolic and 100

diastolic, and numerous fine rales again were heard in the lower lobes of the lungs. The symptoms and signs of congestive failure rapidly increased, and respirations ceased in about twenty-four hours.

The autopsy revealed an enlarged heart, moderate thickening of the coronary arteries, dissecting aneurism of the aorta with rupture into the pericardium, hemopericardium, and congestion of the lungs and of the abdominal viscera.

Comment: A tentative diagnosis of myocardial insufficiency secondary to coronary thrombosis was made on the first visit. The blood pressure, which continued to be high for nearly a week, seemed not to be in keeping with the diagnosis of thrombosis, for in this condition the pressure usually drops within a few hours. The pressure may not drop, however, for a day or two. We have observed two patients whose blood pressures remained practically unchanged for two days after the occurrence of typical attacks of coronary thrombosis. On the third day it was found to be below the normal range in both patients. It is interesting to note in the case of ruptured aorta that no reduction in the pressure was observed until the symptoms of congestive failure had improved. Even then the reading was in the upper limit of the normal range. The variation in the blood pressure in this instance, as in the case of ruptured aorta discussed by Hamman,[3] was like that often observed in treating patients with myocardial insufficiency. Although in many cases of decompensation the pressure is higher in the beginning, it drops as compensation is re-established, whereas in coronary thrombosis the pressure usually drops early and rises later as the functional integrity of the myocardium improves. This may be a helpful point as Hamman suggested in differentiating rupture of the aorta from coronary thrombosis if the patient does not succumb immediately to the accident.

CONCLUSIONS

After listening to descriptions of these episodes it will not seem far-fetched to say they resembled the manifestations of coronary thrombosis. In fact, the resemblance was so striking that our first thought was occlusion of a coronary artery. Further observation led us to change the tentative diagnosis in five cases, while in three cases the diagnosis was uncertain until autopsy revealed the real condition. In the other case the changes in the electrocardiogram suggested a disturbance in the conduction of the impulse for contraction more like that due to dysfunction of the right side of the heart, as described by White, than of a disturbance due to infarction of the myocardium.

Although the diagnosis of coronary thrombosis is easy to make in the average case, still as other diseases of the heart and also diseases of the lungs and abdominal viscera may cause similar symptoms and signs, much difficulty may sometimes be encountered in differentiating them. In these diseases certain leads that may be obtained from the history and certain signs that may develop later will aid us in arriving at a diagnosis. Unless the clinician bears them in mind coronary thrombosis will sometimes be erroneously diagnosed.

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DISCUSSION

DR. J. EDWIN WOOD, JR., University: Dr. Seward's choice of subject is timely. Following Herrick's popularization of the now well-known clinical syndrome of coronary thrombosis, many hastened to discuss this striking picture. Too few have commented upon the fact that other conditions may reproduce much of the clinical picture of coronary occlusion.

Some of these diseases may be correctly diagnosed in time, but such confusing pictures as the differential diagnosis between coronary closure and ruptured peptic ulcer or acute gall-bladder disease require immediate action in the first instance and conservative judgment in the second. The fact that coronary occlusion may closely simulate either of the last named abdominal conditions is generally known. That pleurisy, pulmonary infarction or embolism and fibrinous pericarditis may be confused with thrombosis of a coronary vessel is less well understood. On several occasions lately we have been interested to note electrocardiographic changes in the rheumatic pericarditis of young people strikingly similar to those found in coronary occlusion. This is, of course, also frequently true of pericarditis with effusion. It is also true that electrocardiographic changes not infrequently prove to be confusing and may suggest coronary occlusion which is not present.

DR. PAUL D. CAMP, Richmond: I should like just to make a remark on quite a rare thing which I think might

be considered in the differentiation of coronary thrombosis. When I was up with Paul White a few years ago, we went over all the records of the Massachusetts General Hospital. They had no record of any such cases at that time. A general practitioner sent us his records of one case and the other three cases were private patients of Dr. White. That is status anginosus induced by paroxysmal auricular fibrillation or paroxysmal tachycardia. As I said, it is rare, but I think it should be distinguished from other attacks of pain, particularly coronary thrombosis. The points in favor of the diagnosis are: The previous history of angina pectoris, of previous paroxysmal tachycardia, or previous paroxysmal fibrillation, and of their association; the finding of a very rapid heart rate on physical examination at the time of the pain; and the demonstration of auricular fibrillation, auricular flutter, or paroxysmal tachycardia by electrocardiogram in patients during the attack of substernal oppression; and finally, the absence of any evidence of coronary thrombosis after subsidence of the paroxysm of rapid heart action. Of course, the course of the illness settled the diagnosis; but in the study of these cases we were very much in doubt as to what was going on and did not really know until the heart had returned to its normal rhythm. In these cases nitroglycerin is ineffective. Quinidine sulphate will sometimes stop an attack. The prognosis in these cases is essentially the same as in coronary thrombosis, because obviously, if the coronary arteries are so poor that the heart cannot go that fast without causing severe pain, the outlook for life is not very good.

DR. RICHARD MASON, The Plains: I have listened with a great deal of interest to Dr. Seward's paper on coronary thrombosis and to the discussion of it, particularly Dr. Wood's discussion of it as being simulated by some other conditions. I just want to mention a case that we had a few years ago that illustrates very well that we might make a mistake by making a hasty diagnosis and thereby do the patient great injustice. The case was a man who died suddenly in the hunting field. We have a great fox-hunting country up there. This man was thrown from his horse and was dead, apparently, when he hit the ground; at least the people who saw the accident thought so. They called me out there and I learned, after getting there, that he was not dead when he hit the ground. Several people got to him while he was still breathing and his pulse still going. Twenty minutes later, when I got there, he was dead. The psychology up in that country is that it is treason to suggest that a man ever gets seriously hurt, much less killed, in the fox-hunting field. That is the chief business up there, and they do not like to think that their sport is a dangerous sport. Two or three of the ladies had gotten there before I did. They were wringing their hands and saying: "Oh, it must have been his heart, Doctor; don't you think it was his heart?" etc. I did not commit myself, because I suspected he might have accident insurance of some sort. I went back and found that he had a large life insurance policy on which there was a double indemnity. To make a long story short, when the family claimed the double indemnity, the life insurance company demanded an autopsy—two weeks, I think, after his death it was. I called up Dr. O. B. Hunter, of Washington, to represent the family with me, and also Dr. M. B. Hiden, our surgeon. The company sent up their man, and we had the autopsy. Autopsy on the heart did not reveal anything. Naturally, we thought of coronary thrombosis, but there was no indication that there was any coronary thrombosis or any other disease of the heart. Dr. Hunter finally discovered that he had a petechial hemorrhage into the cervical portion of the spinal cord, and his diagnosis was that the patient died of respiratory failure caused by the injury to the cervical portion of the spinal cord and not of heart failure. Now, had we jumped at conclusions, this man's family might have lost the large indemnity on his life. The moral is not to jump at the conclusion, in people dying suddenly, that they died of coronary thrombosis or any other heart disease. They might die of accident, just as Dr. Wood's case did on the train.

CAESAREAN SECTION IN RICHMOND, VIRGINIA.*

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A study of all Caesarean sections in Richmond, during five years (1927-1928-1929-1930 and 1931) showed a total of 127 operations performed in seven hospitals. Acknowledgment is hereby made of the courtesy extended to me by these hospitals in permitting a study of their case records and a report of same.

*From the Department of Obstetrics, Medical College of Virginia.

Richmond has a population of approximately 180,000 people. About 50 per cent of all patients in our hospitals are non-residents of the city. They are sent in from the rural districts.

The indications for operation are shown in Table I. Previous Caesarean section is given as the primary indication in only five cases, but nineteen (14.96 per cent) of the patients had previous pregnancies terminated by this operation.

The appendix was removed at the time of Caesarean section in nine cases. No deaths occurred in this group, but seven of the patients were septic after operation and their convalescence was prolonged. Hysterectomy was performed four times, and myomectomy once. Thirty-six patients were sterilized by some type of operation on the fallopian tubes.

TABLE I
Indications for Caesarean Section

	Cases
Generally contracted pelvis	38
Contracted pelvis	13
Funnel pelvis	11
Flat rachitic pelvis	9
Generally contracted flat pelvis	7
Flat pelvis	6
Toxemia of pregnancy	6
Eclampsia	5
Former Caesarean section	5
Placenta previa	4
Uterine fibroids	3
Uterine inertia	3
Cardiac disease	2
Ovarian cyst	2
Kyphosis and scoliosis	2
Premature separation of placenta	2
Rigid cervix	1
Stenosis of cervix following amputation	1
Chronic nephritis	1
Pyelo nephritis	1
Cardiac disease and eclampsia	1
Bandl's ring	1
Contraction ring, twins, attempted version	1
Contracted pelvis attempted forceps	1
Intestinal obstruction following appendectomy	1

Sixty-five or approximately two-thirds of the white patients were residents of Richmond, and thirty-three or one-third of the white patients were non-residents.

Nineteen Negro patients were residents of Richmond, and ten Negro patients were non-residents.

TABLE II
Influence of Residence of Patient on Maternal Mortality Following Caesarean Section

	Number Patients	Per cent Total Patients	Maternal Deaths	Per cent This Group
Resident of Richmond	84	66.1	4	4.6
Non-Resident	43	33.8	4	9.3

Table II shows that one-third of the patients were non-residents, and two-thirds of all the maternal deaths occurred in this group. By per cent the maternal mortality rate for women referred to Richmond was double the rate for residents of the city. This partially explains the mortality rate of hospitals and cities as compared to that of rural districts.

TABLE III
Type of Operation in 127 Caesarean Sections

	1927	1928	1929	1930	1931	Total
Classical High	17	25	17	12	8	79
Classical Low	--	1	3	8	16	28
Low Two Flap	--	1	1	8	10	20
Total Operations	17	27	21	28	34	127

Four classical operations were followed by supra-cervical hysterectomy

Table III shows the increase in the low Caesarean section in recent years, especially the low cervical two flap.

The absence of extra-peritoneal and Porro operations is conspicuous.

TABLE IV
Influence of Race on Maternal and Fetal Death Rate Following Caesarean Section

	Number Patients	Per cent Total Patients	Maternal Deaths	Per cent This Group	Still-births	Per cent This Group
White	98	77.1	3	3.06	2	2.4
Negro	29	22.8	4	13.77	7	24.13
Total	127	100.	7	5.5	9	7.08

The influence of race on maternal and fetal death rates may be seen in Table IV. The maternal death rate for Negroes was greater than four times the rate for white women. An important factor in this may be the indifference of Negro women to prenatal care and to medical care at the time of delivery. The still-birth rate of 24.13 per cent for Negroes as compared to 2.04 per cent for white women is undoubtedly due to the frequency of syphilis in Negroes and to the indifference of these women to physicians and hospitals until complications have appeared.

In several cases the Caesarean section was performed primarily in the interest of the mother and these patients account for the still-birth rate of 7.08 per cent.

In recent years the advantages of the low two-flap operation have been stressed. Table V shows no deaths in twenty operations of this type, and no deaths in twenty-eight low classical Caesarean sections. The histories show that the two flap opera-

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tion was used principally in those cases considered poor risks for the classical type of operation. Porro or extra-peritoneal operations probably should have been used in some of the cases delivered by classical Caesarean section.

TABLE V

Maternal Mortality and Morbidity Following Caesarean Section According to Type of Operation

	Number Operations	Number Deaths	Per cent This Type	Normal Temperature Number	Normal Temperature Per cent This Type	Septic Temperature Number	Septic Temperature Per cent This Type
Classical High	79	7	8.8	17	21.5	62	78.4
Classical Low	28	--	--	9	32.1	19	67.8
Low Two Flap	20	--	--	10	50.	10	50.
Total	127	7	5.5	36	28.34	91	(71.65)

Any patient whose temperature reached or exceeded 100.4° F. (38.° C.) in two different days is classified as septic. Four patients reported under high classical Caesarean were also reported under supra-cervical hysterectomy. From the records it seems probable two of these were actually Porro operations. There were no deaths in this group.

TABLE VI

Relation of Duration of Labor to Maternal Mortality and Morbidity Following Caesarean Section

	Number Patients	Per cent Total Patients	Number Septic Cases	Per cent This Group	Deaths	Per cent This Group
Not in labor prior to operation	67	57.7	51	76.1	1	1.4
In labor less than 12 hours	13	10.2	8	61.5	--	---
In labor 12 to 24 hours	15	11.8	8	53.5	--	---
In labor 24 to 48 hours	16	12.5	11	68.7	2	12.5
In labor 48 to 72 hours	8	6.2	7	89.5	--	---
In labor 72 to 96 hours	8	6.2	6	75.	4	50.

Table VI shows an incidence of 1.4 per cent maternal deaths for women not in labor, and 3.65 per cent for women in labor less than seventy-two hours. Eight women were in labor more than seventy-two hours and four, or 50 per cent, of these died. The high mortality in this group raised the death rate to ten per cent for all women in labor prior to Caesarean section.

Rupture of membranes before operation is an important factor in increasing maternal mortality.

TABLE VII

Relation of Time of Rupture of Membranes to Maternal Mortality and Morbidity Following Caesarean Section

	Number Patients	Per cent Total Patients	Septic Temperature Number Patients	Septic Temperature Per cent of this Group	Deaths Number	Deaths Per cent of this Group
Membranes not ruptured prior to operation	93	73.1	64	69.8	4	4.3
Membranes ruptured less than 12 hours	8	6.2	5	62.5	--	--
Membranes ruptured 12 to 24 hours	5	3.9	3	60.	1	20.
Membranes ruptured 24 to 48 hours	11	8.6	9	81.8	1	9.
Membranes ruptured 48 to 72 hours	--	---	--	---	--	---
Membranes ruptured 72 to 96 hours	2	1.5	--	---	1	50.
Membranes ruptured, time not stated	8	6.2	--	---	--	---

Table VII shows a maternal death rate of 4.3 per cent for women with membranes intact before Caesarean section, and 8.8 per cent for those whose membranes ruptured before operation.

TABLE VIII

Type of Anesthetic

	1927	1928	1929	1930	1931	Total	Deaths
Ether	3	5	1	1	1	11	1
Nitrous oxide, oxygen	--	1	--	--	--	1	--
Nitrous oxide, oxygen, ether	7	14	5	2	2	30	3
Nitrous oxide, oxygen, ethylene	2	--	2	1	7	12	--
Nitrous oxide, oxygen, ethylene, ether	2	3	8	6	3	22	1
Local	2	2	--	1	--	5	--
Local and nitrous oxide, oxygen	1	2	1	--	1	5	--
Spinal	--	--	4	16	17	37	2
Spinal, nitrous oxide, oxygen	--	--	--	1	3	4	--
Total	17	27	21	28	34	127	7

The increasing popularity of spinal anesthesia may be seen in Table VIII. The number of cases

is too limited to give any accurate report as to the relative safety of the different anesthetics.

TABLE IX

Births in Richmond by Years, and Incidence of Caesarean Section

	1927	1928	1929	1930	1931
Total births	4,043	3,953	3,810	3,794	3,613
Number Caesarean sections	17	27	21	28	34
Per cent Caesarean sections in total deliveries	0.42	0.67	0.55	0.73	0.94
Maternal deaths following Caesarean section	1	2	0	3	1
Per cent of deaths in Caesarean sections	5.88	7.40	----	10.7	2.9

Table IX gives the incidence of Caesarean section for five years. Both live-births and still-births are included under total births. No correction has been made for multiple births. While the total number of births has decreased, the number of Caesarean sections has increased from 4.2 per thousand births in 1927 to 9.4 per thousand in 1931. Approximately one-half of all births in Richmond are hospital cases. This gives an average incidence of Caesarean section in two per cent of the hospital deliveries in 1931.

MATERNAL DEATHS—ABSTRACTS OF HISTORIES

1. W. R. W. Resident of Richmond. Referred, white, age 26 years, gravida 1, para 0. Generally contracted pelvis. In labor 36 hours; membranes intact. No vaginal examinations. One rectal examination. Classical Caesarean section, general anesthesia (nitrous oxide, oxygen and ether). Died 6th day post-operative. Puerperal sepsis and peritonitis. Baby alive.

2. G. C. S. Non-resident, but had prenatal care in Richmond. White, age 37 years, gravida 2, para 1, former delivery from below after five days of labor. Flat pelvis. In labor 24 hours. Membranes intact. One vaginal examination. Six rectal examinations. Classical Caesarean section. Spinal. Died 6th day post-operative. Peritonitis. Baby alive.

3. G. P. B. Non-resident, but had prenatal care in Richmond. White, age 25 years, gravida 1, para 0. Generally contracted rachitic pelvis. Not in labor. Membranes intact. One vaginal examination. Classical Caesarean section, general anesthesia (ethylene, nitrous oxide, oxygen and ether). Peritonitis. Baby alive.

4. L. A. Resident, but had no prenatal care. Negro, age 21 years. Gravida 1, para 0. Referred to hospital after long labor. Generally contracted pelvis, chronic nephritis. In labor 96 hours. Membranes ruptured 96 hours. One vaginal examination, two rectal examinations. Classical Caesarean section, general anesthesia (ether). Died two hours after operation. Baby still-born.

5. E. M. Non-resident. No prenatal care. Negro, age 21 years, gravida 1, para 0. Referred to hospital after prolonged labor. Flat pelvis, toxemia of pregnancy, eclampsia. In labor 72 hours. Membranes ruptured 20 hours. No vaginal examinations, five rectal examinations. Classical Caesarean section, general anesthesia (nitrous oxide, oxygen and ether). Peritonitis. Baby alive.

6. K. C. Non-resident, Negro. No prenatal care. Age 15 years. Gravida 1, para 0. Pregnancy of 37 weeks duration. Referred to hospital after profuse vaginal hemorrhage for 20 hours. Generally contracted pelvis. Placenta previa centralis. Cervex 2 cm. dilated. Membranes ruptured. Examinations: One vaginal at home, one rectal in hospital. Baby dead. Classical Caesarean section. Spinal anesthesia. There was a complete laceration of the placenta over the internal os, and a rupture of one of the large vessels of the placenta, just lateral to the umbilical cord. Baby still-born. Patient transfused. Died 4 days post-operative. Puerperal sepsis and pneumonia.

7. L. D. Non-resident, negro. No prenatal care. Aged 29 years, gravida 1, para 0. Flat pelvis. In labor 72 hours. Membranes ruptured 24 hours. Examinations: Several vaginals at home, one rectal in hospital. Classical Caesarean section, general anesthesia (nitrous oxide, oxygen and ether). Died 4 days post-operative. Puerperal sepsis and paralytic ileus. Baby alive.

STILL-BIRTHS—INDICATIONS FOR CAESAREAN SECTION

1. White. Mother in labor twenty-three hours. Premature separation of placenta and eclampsia.

2. White. Mother in labor twenty-five hours. Premature separation of placenta.

3. Negro. Mother in labor twenty-four hours. Bandl's ring; attempted forceps.

4. Negro. Mother in labor ninety-six hours. Generally contracted rachitic pelvis.

5. Negro. Mother in labor sixteen hours. Generally contracted pelvis, pre-eclampsia.

6. Negro. Mother in labor (?) hours. Generally contracted pelvis, eclampsia.

7. Negro. Mother in labor forty-eight hours. Generally contracted pelvis. Tetanic uterus.

8. Negro. Mother in labor ninety-six hours. Generally contracted pelvis, placenta previa.

9. Negro. Mother in labor forty-four hours. Generally contracted pelvis, pre-eclampsia, pyelitis.

TABLE X

Maternal Death Rate Following Caesaren Section by Cities

Name of City		Per cent Maternal Deaths
Brooklyn	1921 to 1926 inclusive	5.9
New Orleans	1921 to 1926 inclusive	16.1
Detroit	1926	13.
Indianapolis	1926	11.3
Richmond, Va.	1927 to 1931 inclusive	5.51
Houston, Texas	1924 to 1926 inclusive	14.4
Cleveland Registration Area	Five years	7.15
Portland, Oregon	1926 to 1929 inclusive	7.33
Los Angeles	1923 to 1928 inclusive	4.2
Philadelphia	1931 to 1933 inclusive	----
New York	1930 to 1932 inclusive	6.1

Table X gives the maternal mortality rate following Caesarean section in eleven cities in different sections of the United States. While we are not proud of an uncorrected maternal mortality rate of 5.51 per cent following Caesarean section in Richmond, it compares favorably with the maternal mortality rate of other cities. It is high if compared with the rate of 2.6 per cent at the Chicago Lying-In, reported by Greenhill, the rate of 3.14 per cent at the New York Lying-In, reported by Sackett, and the rate of 3.6 per cent at New York Nursery and Child's Hospital, reported by Hawks.

SUMMARY AND CONCLUSIONS

The maternal mortality rate is greatly increased by complicated cases referred to hospitals for delivery after the onset of labor.

Two-thirds of all the maternal deaths occurred in women who were not residents of Richmond.

The duration of labor is an important factor in increasing maternal mortality following Caesarean section.

Rupture of membranes increases the maternal mortality rate following Caesarean section.

There were seven maternal deaths in seventy-nine high classical Caesarean sections, an incidence of 8.8 per cent.

There were no maternal deaths in forty-eight low Caesarean sections, at least twenty of which were done on women potentially infected for whom the classical type of operation would have been unsafe. This indicates the greater margin of safety in the low cervical two-flap Caesarean section.

The mortality rate was 8.69 per cent for primiparae and 1.81 per cent for multiparae.

Six normal babies survived the seven mothers who died. The type of operation in some of these cases was poorly selected.

There were nine still-births. In each case the Caesarean section was done primarily in the interest of the mother.

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THE DIAGNOSIS OF EARLY SYPHILIS.*

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The term early syphilis as used in the majority of modern textbooks includes both the primary and secondary manifestations. The importance of making an early diagnosis is not recognized by all physicians. The purpose of this paper is to review the methods available that will aid the physician in establishing such a diagnosis.

It is true that the modern methods employed in diagnosing early syphilis are mostly laboratory procedures. This is largely due to their high percentage of perfection, and to the unreliability of the clinical appearance of early syphilis. The physician must have a high "threshold of suspicion" towards syphilis and knowledge of its manifestations, to recognize the presenting signs and symptoms of a condition which should require a complete search for syphilis. Once syphilis has been suspected, the diagnosis must be confirmed by the most rigid laboratory procedures before treatment is started.

Clinically one must remember that the chancre may assume many forms, nor is it very particular in regard to its location on the human body, its site being that of original contact which may be anywhere. The primary may vary from a small area of excoriation to large multiple areas of indurated ulceration. The final diagnosis depends on laboratory confirmations. The dark field examination is by far the procedure of choice in establishing the diagnosis of a chancre. It must also be remembered that the clinical manifestations of secondaries may be many, and the most important laboratory aid in the diagnosis is a rapid serological examination; however, the dark field is of much value in such cutaneous lesions as condylomata.

The handling of a case of early syphilis is now universally recognized as an emergency. The prevention and control of syphilis is sufficient to warrant such an attitude. There is a state of laxity and indifference among many physicians in regard to syphilis. They often prefer not to have these cases, and consider the disease as having been bred from immorality. A large percentage of syphilis is acquired innocently, either through marriage, childbirth, kissing or some other form of contact.

The establishment of a quick diagnosis is of considerable benefit to a patient with early syphilis. If one fails to obtain a positive dark field on the seronegative primary, the chance of the so-called "radical cure" has been lost. Moore states that the chance of cure is 18 per cent better in this stage than after the serology has become positive, and 21 per cent better than after the secondary stage has been reached. This data is based on the material of the Cooperative Clinic Group, and literally means that even a few days delay in the diagnosis of early syphilis may cause a decrease of 15 to 20 per cent in the chances of a favorable outcome for the patient. This, combined with the necessity for preventing the spread of syphilis, is sufficient reason for its early diagnosis and treatment, but not sufficient reason for treatment before the diagnosis is made. If one commences treatment, especially if with an intravenous injection of an arsenical, before making the diagnosis, the chance of ever establishing the correct diagnosis may have been lost.

The secret of being able to make this desirable early diagnosis rests in one's ability to use, or have available, the dark field microscope. It is not until the third week of infection that the serological tests approach the accuracy of the dark field examination. According to Owen and Cope[1] the percentage of accuracy of the dark field in the first week of the primary is 92.5, whereas the blood tests (Kolmer and Kahn) are only 26.5; during the second week the dark field had an accuracy of 87.3 per cent, and the blood tests had increased to 51.1 per cent; in the third week the dark field was 75 per cent, and the blood test approximately the same, namely 71.1 per cent; whereas in the fourth week the dark field was only 52.2 per cent, and the blood tests had reached an accuracy of 89.1 per cent. Thus it can be readily seen that unless the dark field ex-

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amination is used as the one of choice in the diagnosis of primary syphilis, at least three to four weeks may be lost before such a diagnosis can be established by the use of blood tests.

In regard to the use of the dark field, undoubtedly the best is the one in which the patient comes to the physician's office, the lesion then examined physically, its characteristics noted, and the serum obtained from the prospective chancre or lymph gland in drainage area, placed on a slide and a search made for the Treponema pallida under a dark field microscope. Although this sounds relatively simple, it does, however, necessitate experience in being able to differentiate the Treponema pallida from other forms of spirochetes, and also one must be familiar with the technique of collecting and examining the serum. The majority of physicians are unable to make satisfactory dark field examinations either because of lack of experience with this procedure or because they do not have sufficient number of patients requiring this to warrant their purchasing expensive equipment. The result of this is that many patients unable to reach a syphilologist do not have a diagnosis made until the serology becomes positive.

In obtaining the serum for a dark field one must first cleanse the lesion with normal salt solution. A small amount of the serum is then obtained with as little blood as possible. The drop of serum is then placed on a thin slide, covered with a thin coverslip and examined with a dark field microscope. The use of any kind of chemical on the lesion before the serum is obtained decreases the chances of a positive dark field. Because of this it is never advisable for one to treat a prospective chancre locally until the diagnosis has been made.

Not sufficient attention is paid to indolent extragenital lesions. Routine dark field examination of these often gives surprising results. Extragenital lesions explain a number of cases of unsuspected late syphilis without a history of venereal infection.

One properly employing the use of these laboratory procedures in the diagnosis of early syphilis must give his patient a thorough follow-up before such a diagnosis has been ruled out. A single negative dark field will not do this. If one fails to find Treponema pallida after the examination of two or three slides on the first visit this must be repeated at short intervals for several days. If these are still negative one must continue with a serologic follow-up—that is, monthly tests for six months.

Serum obtained from a lesion of the mucous membranes of the mouth often contains organisms difficult to differentiate from Treponema pallida. Because of this it is not advisable to rely on the dark field alone in diagnosing syphilitic lesions of the mouth.

Those interested in the control of syphilis have for years recognized the need of some method whereby any physician and every patient, even in the remotest section of any state, might have the benefit of an efficient dark field examination. Reihl,[2] in 1919, by a series of experiments in which he collected serum from a known chancre into capillary tubes, was the first to suggest that the morphology of the Treponema pallida could be recognized for days after the specimen had been obtained. Stokes and Ewing,[3] in 1926, devised a method whereby a physician could collect the serum from a possible chancre into capillary pipettes, take it to a central laboratory and within a short time could have the report of a dark field examination. When they published this work they suggested that it might be possible to collect the serum, place it in a container, and send it a longer distance through the mails. Again, in 1930, Mahoney and Bryant[4] found that by collecting the serum from a prospective chancre into capillary tubes, sealing their ends in wax, placing them in a container and sending it through the mails, the Treponema pallida, although showing some decrease in motility, could be definitely recognized under the dark field microscope seven to thirteen days later. McNabb, Matthews, and McClure,[5] in 1933, by the use of a similar method were able to make a diagnosis after their specimens had been mailed from 150 to 1,000 miles. Again, in 1934, McDaniel[6] described a similar method.

At the present time the New York State Health Department is using the dark field examination of mailed specimens as an aid to the physicians of that state in making a quick diagnosis of early syphilis. The serum is collected into several small capillary tubes, both ends of each tube are then sealed with wax, a small amount of this being supplied in each set; these are then placed in a test tube, and packed in a container for mailing similar to that used in this state for Wassermanns (Figure 1).

By using this method, we have been able to demonstrate Treponema pallida six days after the

specimen had been collected, kept at room temperature and, as other workers have reported, noticed that the only difference from that of the direct dark field was some decrease in the motility of the organism.

If in some way it would be possible to begin using a similar method, every physician in any part of the state could collect his specimen, mail it to a laboratory and, within a short time, would have the report either by mail, telegraph or telephone. Unless it is possible to establish stations for accurate direct dark field examinations in every locality, such a method must be used if we hope to properly control syphilis. Some physicians hesitate to refer patients to another, and some patients with genital lesions will not go to a laboratory. This would be unnecessary when the indirect dark field is available.

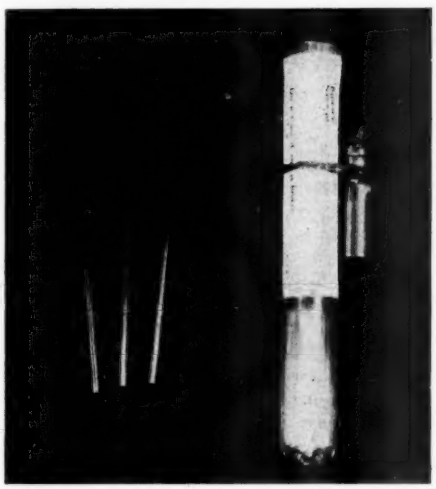

Fig. 1.—Photograph of capillary tubes, stoppered test tube to hold these and attached vial of wax for sealing the end of capillary tubes (courtesy N Y. State Dept. of Health).

The diagnosis of secondary syphilis presents a somewhat different problem. As far as the patient's welfare is concerned, the advisability of beginning treatment immediately is not as urgent as in the primary, but the need of haste from the viewpoint of preventive medicine is still present. The serological examinations are the procedures of choice during this stage, and most of them are extremely accurate. Occasionally one will see a suspicious case having negative serology. In these a serologic follow-up should be done after the causes of false negatives, such as the ingestion of alcohol, have been eliminated. When open lesions present themselves the dark field can also be used. There are several quick laboratory procedures that will enable the physician to confirm his clinical diagnosis while the patient is still in the office. The Kline precipitation test, using a cholesterinized antigen, which can now be purchased on the open market, is probably the most widely used one, and is relatively simple. It is entirely possible for a physician with some laboratory experience to use this in his office, not only as an aid in the quick diagnosis of syphilis, but also in his routine medical examinations. The Eagle flocculation test is another similar to the Kline in that it can be performed very rapidly. These, however, are subject to some personal error of technique. Other modifications of tests have been recommended.

When there is delay either in waiting for a laboratory report or when examination has to be repeated the patient should be instructed as to how to protect others with whom he comes in contact. The patient should be especially warned in regard to sexual intercourse, kissing and other forms of personal contact because it is by such means that early syphilis is more readily spread.

There are several other methods that have been used either separately or as an adjunct to some of the above procedures in establishing the diagnosis of early syphilis. Any capable pathologist should be able by a microscopic examination of a section from an early syphilitic lesion to confirm the diagnosis in a few hours, but such a method could not possibly be available except in medical centers. The staining of slides in an attempt to demonstrate Treponema pallida has not proven entirely satisfactory. Animal inoculation, although possible, requires too long a time before the spirochetes can be demonstrated to be of any benefit in making such a diagnosis during the early stages of the disease. Local Wassermann or precipitation tests, which have been used, are not always reliable.

Any procedures which have as their purpose the rapid and efficient diagnosis of early syphilis so that treatment can be begun immediately, must have as their ultimate aim, in addition to curing the patient, the control and the prevention of the spread of this disease. There is another method that is of definite benefit in the prevention of syphilis and often aids the physician in arriving at a diagnosis,

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namely, the follow-up and follow-back of source cases and exposed contacts of suspected syphilitics. The exposed contact of an infected syphilitic would certainly increase one's threshold of suspicion in regard to making a diagnosis in that patient. The physician's duty has not ended with the diagnosis and subsequent commencement of treatment of his original infectious syphilitic individual. For every case of syphilis there is another one somewhere from whom he has contracted it, and possibly more that he has infected. With very little trouble and time, one can persuade the patient to give the names and addresses of his contacts. Either by means of a letter to the contact, or a letter to the contact's physician, or by a message through the patient, or by legal means, if necessary, one can get many other possible infectious syphilitics in for diagnosis and treatment if indicated.

Smith and Brumfield[7] showed that it was practical to trace the source of infection in syphilis and that a large number of cases could be gotten in for earlier diagnosis, thereby reducing the period of infectiousness of these individuals. Since this work was first begun, a total of 207 infected syphilitics named 511 sex partners. From this number 171 were gotten in for examination, and it was found that 73.7 per cent of these had syphilis.

SUMMARY

Dark field examination is the procedure of choice in the diagnosis of the chancre. When direct dark field is not available or desirable, indirect dark field is almost as efficient. Serological examinations are of more benefit in the secondary stage, but should be repeated when negative in suspicious cases. It is helpful in the diagnosis and cure of early syphilis to investigate the source case and exposed contacts of a patient. This investigation is essential in the prevention of the spread of this infection.

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DISCUSSION

DR. L. T. PRICE, Richmond: I wish to emphasize the points brought out by Dr. Barksdale about the importance of diagnosis. I may be wrong, but personally I consider that syphilis is one of the greatest menaces to mankind, next to cancer. I include every disease that I know of. I feel that cancer is possibly more serious, and I put syphilis next—even ahead of tuberculosis.

I want to emphasize the importance of diagnosis, first, before any treatment is instituted. It is absolutely inexcusable for a doctor who does not establish the diagnosis of syphilis before he institutes treatment. In my opinion he is criminal, because he forever thereafter distorts, disturbs, and makes it impossible to establish a correct diagnosis in that particular individual. There is absolutely no reason nowadays why any man, I don't care where he is located in this section of the country, cannot get access to a laboratory where there is a technician or a physician who knows the methods of diagnosis of syphilis from the primary lesion. However, for the convenience of the patient and for the immediate establishment of the diagnosis from the intial lesion, I advise that any physician, who wishes to refer his patient for diagnosis, advise no local treatment to the lesion, meaning that an antiseptic of any kind destroys and kills the spirochete, so that an examination made by the consulting physician or serologist or technician has had the evidence destroyed when the patient is submitted for examination; consequently the diagnostician will have to cause the patient a delay of from one to two or three or four days in having him return for an examination. In other words, advise the patient under no circumstances to use any antiseptic of any kind, meaning mercurochrome, bichloride, any preparation of any kind, wet or dry, other than keeping the lesion clean with either plain water or a saline solution, bathing it two or three times a day. Gentlemen, it is criminal for anyone to institute treatment for syphilis until a confirmatory diagnosis has been established by laboratory procedures. Clinical symptoms should not be accepted as final, irrespective of how clear and distinct they are. Of course, the Wassermann is your next means of establishing a diagnosis in the absence of having made an examination of the lesion itself.

I want to congratulate Drs. Barksdale and Smith for this most excellent work they are doing in the State of Virginia in regard to the follow-up system. Any of you who were at the American Medical Association at Atlantic City probably observed their exhibit, which I think was most creditable and an excellent system.

THYROID CONTROL IN CARDIAC THERAPY.*

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I am sure that everyone here has one or more cases of chronic heart disease that are permanently invalided and hopeless so far as self-support or useful life is concerned, and who may be expected to live a considerable time if they stay in bed and avoid all exercise, and, in short, remain invalids. This does not mean that they will be comfortable, free from anginal attacks, or dyspnea and edema, but that they may merely exist if they live down to their capacity. It is for this class of unfortunate individuals that a small ray of sunshine is breaking through the clouds of utter hopelessness, in the comparatively new operation of total ablation of the thyroid gland. It is impossible to determine at this time whether the procedure will endure as a therapeutic measure, since sufficient time has not yet elapsed to judge the permanency of the results, but certainly, in the cases followed, it has made life more comfortable and less painful, and somewhat more useful, even though we cannot definitely state that it has prolonged life.

Numerous reports have appeared in the medical press concerning this therapy, some slightly confusing, but Blumgart, of Boston, has been doing it successfully since 1932, and numerous others also, and the results are more than encouraging, especially in the angina cases, and not discouraging in the congestive heart failure cases. Therefore, I felt that it might deserve our consideration and time.

It seems that the operation was suggested by a rather accidental occurrence. A patient with advanced congestive heart failure, who responded to rest, digitalis, and diet, only to decompensate and fibrillate again on the slightest exertion, was operated on for thyroid because it was suspected that he might be thyro-toxic. After operation the pathologist reported normal thyroid tissue had been removed. Strange to say, the patient improved most amazingly. This started a train of thought.

We know that the thyroid controls the basal metabolic rate, and that the higher the basal metabolic rate the greater need for oxygen, and the lower the basal metabolic rate the less need for oxygen. If, therefore, we produce an artificial myxedema and so lower the basal metabolic rate by doing a partial thyroidectomy, we should have a patient who needs less oxygen. If he needs less oxygen, his circulation need not be so fast and his heart is relieved as it has less work to do. If, therefore, we have a heart, badly damaged and unable to maintain a circulation of sufficient velocity to supply the oxygen demanded by a normal basal metabolic rate, why not reduce the basal metabolic rate by thyroidectomy? The damaged heart is then able to supply the reduced amount of oxygen required by a lower basal metabolic rate, and so the strain is relieved and the symptoms abated.

Another point in favor of this was the fact that patients with the awful hearts of severe thyroid toxemia miraculously recovered and their hearts carried on beautifully after thyroidectomy. This everyone knows, as it is one of the so-called miracles of surgery.

Again, experiments show that the normal velocity time of the blood flow from the elbow to the tongue is eighteen seconds. However, in cases of hypothyroidism it is twenty-five to thirty seconds, and still the tissues remain well nourished. So, why not produce hypothyroidism and slow the velocity of the blood flow and thus relieve the heart of part of its burden? Still, again, it is our definite knowledge, sometimes to our sorrow, that administration of thyroid extract to myxedematous patients will sometimes induce an attack of angina, if the anginal state has been masked by the myxedema.

Therefore, men who had been toying with the idea of Coffey and Brown that cervical sympathetic removal relieved anginal pain, and other men who could remember Jonnesco's operation for removal of the cervical ganglion for angina, way back in 1916, began to remove thyroids for various types of hopeless heart disease. It was found, however, that if the thyroid was partially removed, the symptoms were relieved but not for long. The thyroid tissue remaining hypertrophied and soon restored the metabolism to the normal, and so a second operation was necessary. This was hard to do because of adhesions and other surgical difficulties. Then, in

*Recently read before the "Confrere Club" and the "Baltimore County Medical Society."

1932, Blumgart, of Boston, began doing a total removal of the thyroid instead of a sub-total, and his results are striking.

Now a total thyroidectomy is said to be three times as hard to do as a sub-total one, because in the latter you stay in the capsule and avoid the recurrent laryngeal nerve and also the para-thyroids. As you know, injury or section of the recurrent laryngeal nerve causes paralysis of the vocal cord, and removal of the para-thyroids upsets the calcium metabolism and produces tetany. However, the technic is being perfected as to local anesthesia and examination of the cords when the operation is half completed, and the mortality is falling all the time.

The proper selection of the cases is also improving the operative risk, so that today Blumgart reports cure in 35 per cent of his anginal cases and relief in 50 per cent. This makes a total of 85 per cent good results, with an operative mortality of about one in twelve cases or thereabout.

The important thing is to determine which case should and which case should not be operated on. Allen gives the following indications for operation:

1. Advanced chronic myocardial insufficiency, as evidenced by angina pectoris or congestive heart failure with edema, ascites and respiratory embarrassment.
2. Failure of medical treatment to keep the patient from being invalided.
3. Slow advancement of the disease, for, as you can readily see, a rapidly advancing cardiac case would not tolerate the operation.
4. Long observation by a competent cardiologist to rule out unnecessary and hopeless cases.
5. A reduced tolerance to exercise.
6. A circulation time of less than one minute from the elbow to the tongue.
7. Ability to live through the operation.
8. Considerable cardiac reserve.

The contra-indications given by Allen are as follows:

1. Adequate response to well-established forms of medical treatment.
2. Rapidly progressing heart failure.
3. Dyspnea due to an inadequate respiratory system, such as cases of emphysema, bronchial-asthma, bronchiectasis, etc.
4. Absence of cardiac reserve.
5. Vital capacity equal only to tidal air.

To these contra-indications I might add some others, such as recent coronary thrombosis, pulmonary embolism, cases which continue down hill and in whom the edema increases despite rest in bed, digitalis, and adequate medical treatment, cases of recent cerebral accident and syphilitic cardiacs.

This is a condition in which the surgeon and the internist must cooperate most completely. A careful history is essential. I shall list only a few necessary features of the history. One must obtain the duration of the illness, the rate of progression, the response to rest and medication, the severity of the cardiac condition, the kidney and gastrointestinal condition, the mental status of the patient as to emotionalism, excitability, mental clarity, and ability to understand, appreciate, and profit by advice, the signs or lack of signs of thyroid intoxication, such as unstable skin circulation, intolerance to cold, increase in reflexes, enlarged thyroid, fast heart, nervous excitability, basal metabolic rate, eye signs, weakness, and so on.

The physical examination should be most complete, with special attention to the cardio-vascular and respiratory systems. Look for edema, dyspnea, increase in the area of cardiac dullness, changes in the heart sound, changes in the electrocardiograph, blood pressure, exercise tolerance, pulse rate, rhythm, velocity of blood flow, and many other things too numerous to mention.

It is necessary to determine that the dyspnea is due to the heart condition and not to an accompanying respiratory abnormality, and the edema must be cardiac and not nephritic.

As I mentioned before, a local anesthetic, possibly supplemented with gas, so that the patient may be awakened at any time and made to talk to test the vocal cords is best.

It is best, also, that the patient be given hospitalization previous to operation, and a careful study as to idiosyncrasies regarding drugs and other peculiarities be instigated. As little sedation as possible following operation is desirable, since abolition of the cough reflex is undesirable.

The after-treatment is probably as important as anything. It is necessary that these patients acquire a basal metabolic rate of 20 per cent below the preoperative level and that this rate be maintained. Any rate of minus 30 requires administration of thyroid extract. You can readily see that it requires expert manipulation to administer a dose of thyroid extract to these patients sufficient to main-

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tain a basal metabolic rate which prevents serious symptoms of myxedema and at the same time does not raise the rate above the level at which they are free from cardiac symptoms. This shows the impossibility of operating on patients who have a preoperative basal metabolic rate which is below minus 15.

There is a definite response and improvement immediately following operation and before the basal metabolic rate has fallen the required 20 per cent, but this improvement does not last. It takes from four to six weeks for the 20 per cent fall to occur, and therefore it is essential that one maintain bed rest and also mental quietude to prevent a return of symptoms before the reduction in the basal metabolic rate has been accomplished. Many other features of the medical treatment must be borne in mind, but time does not permit their discussion.

Occasional cases of post-operative tetany will develop if the para-thyroids have been injured and these are controlled by one intravenous injection of calcium chloride and the oral administration of calcium thereafter. If the operator finds that he has removed para-thyroid tissue, he implants it in the sterno-mastoid muscle.

All the foregoing discussion has been preliminary to a thought which I want to bring to you. It is more than a thought. I hope to make it a suggestion.

It may be possible for you and me to improve the condition of some of our apparently hopeless cardiacs by measures tending to lessen the basal metabolic rate, even though all of these measures be not necessarily surgical. By way of illustration I shall mention a few cases, and hope that they may induce discussion.

E. K., female, age 35, bedridden, with a rheumatic heart which was fibrillating. Her physician had been able to keep her out of bed only for short periods for the last eighteen months, although treatment was adequate. Her basal metabolic rate was plus 10. Eight weeks after a sub-total thyroidectomy, she was able to walk slowly to the street car and come to my office and is now doing part of her housework and is comfortable.

E. D., female, age 52, was told by a cardiologist that her rheumatic heart was beyond repair and that she must resign herself to the bed and a wheel chair for the rest of her life. Her basal metabolic rate was plus 18 and she had a nodular thyroid. X-ray treatment by Dr. Pierson over the thyroid gland has so improved her that she has been able to take a trip to Europe and now spends most of her time looking after her grandchild, which necessitates activity.

K. L., female, nurse, age 32, history of tonsillitis, rheumatism, chorea, and a recent cardiac decompensation, with a basal metabolic rate of plus 15, had a thyroidectomy, although there were no signs of thyroid toxemia. She was able to resume nursing in three months, although an arrhythmia persists.

M. F., female, 40 years old, school teacher, partially incapacitated by rheumatic heart disease for the past four years, finally reached the stage where, even with rest in bed, she had four or five attacks of angina each day and had to take much nitroglycerin, metaphyllin, and averaged one-half grain of morphia per day. Her surgeon, Dr. Hayward, felt that she would not stand a thyroidectomy and her basal metabolic rate was normal. She was given X-ray treatments over the thyroid by Dr. Pierson and has been entirely free from angina, is taking no sedatives, and has been teaching school continuously for the past year.

I am going to mention one other case which raises a point that is perplexing me. A man whom Dr. Pinto sent to me with signs of congestive heart failure and also continual anginal pain, had repeated negative Wassermanns, both spinal and blood, and a normal basal metabolic rate. Six months' treatment in the hospital and at home in bed failed to help him until I put him on iodide of potash. In six weeks he resumed his duties as executive in a large insurance company and works every day without pain or discomfort. If he stops the iodide, his condition recurs. Did the iodide correct a thyroid dyscrasia?

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VASCULAR SURGERY NECESSITATED BY TRAUMA.*

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Dr. Murphy once made the statement that you could not make a surgeon of a man until he had lost his fear of hemorrhage. Meaning, I take it, that until an operator had acquired, both in the experimental laboratory and by actual experience, such skill in vascular surgery that he felt capable of coping with any hemorrhage he might meet he should not consider himself a surgeon. This, of course, does not mean the mere ability of ligating a bleeding vessel before death might supervene from hemorrhage. It means a reconstruction of vessels when necessary to preserve life and function unimpaired.

In the older days when surgeons were trained through many years of apprenticeship under the guiding hand and watchful eye of master surgeons it was not unusual to find hospitals with such trained men always in attendance. This is still true of the larger teaching hospitals today. However, quite a large part of our surgery at this time is being done in smaller hospitals or in hospitals which have sprung up over night in the highways and by ways of country lanes, by men who sometimes find themselves rather hard put to repair damage to tissue that their failure to realize anatomical relationships might have caused. This is not intended at all as a criticism either of these hospitals or of the surgeons who run them. It is generally realized that the rural communities have demanded better hospital facilities than they did formerly; that people do not care to travel long distances from home for hospitalization and that the rapid increase in motor travel is frequently causing accidents, the victims of which require immediate hospital attention at the nearest available hospital. The purpose of this paper is a plea that these hospitals be equipped and that these surgeons train themselves to care for accidents that occur to the vascular system as well as they have done to the skeletal structures.

We recall that at one time our vascular suture material consisted of very fine silk which was threaded on small needles run through vaseline, then through towels and autoclaved. It was almost impossible to keep this type of suture in reserve. It had to be prepared a short time before it was intended for use. This, of course, precluded its being on hand for emergencies that were rushed in the hospital or for accidents that might unexpectedly occur in the course of an operation. At the present time, however, the makers of suture material have provided for this in that they have prepared a vascular suture consisting of very fine silk attached to an atraumatic needle and put up in oil. All operating rooms should carry this in stock. It is sterilized in oil and is ready for immediate use.

Accidents occurring at the time of operation are of course unexpected things and have to be attended to on the spot. Walters has reported a case in which in removing a malignancy of the kidney he found that the growth had extended along the renal vein and was protruding in the vena cava and it was necessary to resect and repair a portion of the vena cava. Cases in which the portal vein has been injured in operations on the gall-bladder or ducts have been reported. It has been my misfortune to twice injure the axillary vein in breast resections, once with a radio-knife. The veins were immediately repaired by longitudinal suture and the patients had no edema of their arm and no disturbance of any kind from the accicdent.

May I take a little of your time to describe the repair of arteries which are of sufficient caliber to allow suturing? When a large vessel is injured in an operation instinctively either the surgeon or his assistant makes a grab for it with the first available clamp. If he is successful in catching it he prob-

*Read before the sixty-sixth annual session of the Medical Society of Virginia, at Norfolk, October 15-17, 1935.

ably does irreparable damage to it and finds himself forced to ligate it. The bleeding should be controlled either by finger pressure or a piece of moist gauze. The vessel should be isolated and lifted from its bed, either with rubber catheters, penrose drains or Allis clamps. Almost any hemorrhage can be controlled with any of these methods. The extent of damage to the vessel is determined and the best method of repair decided upon. Some three or fours yars ago there appeared a short article on "A Method of Repair of Longitudinal Slits in Blood Vessels." I cannot recall now who was the author. The suture was very simple. With fine silk on an atraumatic needle a stitch was taken through the upper end of the rent and tied so that there was a small eversion of the endothelial lining. Then a running mattress stitch everting a small cuff was taken through all the coats of the vessel to the lower end of the rent where it was also fixed. The thread was then run back up over the cuff external to the mattress stitch and tied at the upper end.

Of course you are all familiar with the transverse resection and repair of an artery by applying three sutures at opposite sides of the arterial lumen in such a way that there is a slight eversion of the endothelium. Then, by putting any two of these sutures on a stretch, a straight line with everted edges is obtained for suture. These sutures are picked up in turn until all three sides of the artery have been repaired. When they are released the circular lumen of the artery is restored. Whether a longitudinal slit is repaired or a circular repair by resection the blood stream should be returned to the arterial lumen in full force. In other words, first the distal and then the proximal ligature should be released. If for any reason the stream is slowed at the suture line a clot will form. For a few seconds there will be some oozing through the suture line. This usually stops very promptly and there should be no further bleeding.

It would be presumption on my part to take up your time with the treatment of arterio-venous or other forms of traumatic aneurysms. This type of surgery has been so thoroughly described by Matas, Reid and others and their writings are so complete that any one interested may have the literature always available. We are, of course, all familiar with the fact that arterio-venous aneurysms, even in small vessels, may play havoc with a person's cardio-vascular system, and that when the abnormal opening is closed there is an almost immediate improvement in the patient's circulatory disturbances.

We know too of the observations of Branham, that when sufficient pressure is made on the artery proximal to the fistulous opening there is a slowing of pulse rate and a rise in both the systolic and diastolic reading, most marked in the diastolic.

If the artery is accessible the introduction of a dye with proper technique in the blood stream a short distance above the fistula will demonstrate its exact location.

I think we are all inclined to attempt to repair these fistulate without waiting sufficiently long for collateral circulation to be set up. If the patient's circulatory disturbances are not too marked or are not progressing too rapidly, from four to six months, according to Reid, should pass before the operation should be attempted. This allows for any inflammation to subside and for sufficient collateral circulation to be developed to take care of the tissues distal to the fistula should it become necessary for a double ligation of all the vessels involved. In a few instances, during the waiting period, the fistula may close spontaneously.

I wish to report the following cases which have come under my care:

R. T., white, male, married, age 41 years, was in an automobile accident on March 16, 1931, in which he was cut on the right side of the neck with flying glass. At that time he was under my care and it was found necessary to ligate the external jugular vein. He had some little infection in his neck but made practically an uneventful convalescence.

He was re-admitted to the hospital on May 12th with the statement that about two weeks before admission his neck began to swell and he had a roaring that he could hear in his head. He stated that he had a one-cylinder engine in his head. He was having a slight headache and insomnia. The noise in his head was much worse when he was lying down and he was more comfortable when standing or sitting up. There was no definite tumor mass but a thrill could be felt and a bruit could be heard all over the right side of his neck. Pressure on the carotid did not affect the bruit. His blood pressure was 125/70; heart normal.

He was operated on May 13, 1931. It was found there was a direct communication between the internal jugular and the common carotid on the right side. The external jugular had been ligated two

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months before. The internal jugular was doubly ligated and the opening in the common carotid artery repaired. When he was returned to bed he had a good temporal pulse and when he awakened he stated that the noise in his head had entirely disappeared. He left the hospital on his tenth postoperative day with no evidence of any disturbance in his neck. He has not developed any subsequent trouble.

B. P., female, colored, single, age 20 years, was admitted to the hospital on the morning of June 20, 1934, having been shot with a pistol in the right forearm, the right chest and the left upper chest.

The report of the X-ray taken the following day states, "Gunshot fracture involving the inferior aspect of the left clavicle at approximately the middle of the shaft. The bullet lies below and outside the chest cavity. The lung fields do not appear remarkable.

"There is an extensive irregular comminuted gunshot fracture of the upper extremity of the right ulna just below the elbow joint. The position of the fragments is good considering the type of the injury. There are multiple fragments of lead about the site of the injury."

The wound in the right chest wall was superficial. She had no left radial pulse and a blood pressure reading could not be obtained in the left arm. However, there was no edema of her hand or arm, she could move her hand and forearm without difficulty, and apparently it was as warm as the other side. Her temperature rarely went above 100 but her pulse rate frequently was above 120.

On July 3rd the chart states, "She is complaining of throbbing in the left shoulder at the site of the wound. Examination discloses marked edema about the wound with an increase in local heat. There is definite tumor mass with pulsation and a bruit."

We were under the impression that we were dealing with an infected traumatic aneurysm and that in spite of the tremendous risk it should be explored. This was done on July 5th, fifteen days after the original injury. The clavicle was lifted out of the way and an aneurysm about the size of a lemon found. Guarded clamps proximal and distal to the mass were applied and the mass opened. It proved to consist of a large organized clot with an injury of the first portion of the axillary artery. We were unable to control the hemorrhage and the anesthetizer reported that the patient was in very bad condition: that the pulse was uncountable. Six clamps were applied to bleeding points and the wound packed with two pieces of iodoform gauze. This controlled the hemorrhage but the patient's condition was such that we did not feel justified in making any further attempt to repair the artery at this time. She was put back to bed in very poor condition but reacted under infusions and a transfusion.

On July 11th all of the clamps were loosened one notch. On July 13th part of the clamps were entirely loosened and on the 14th three of them were removed. On July 15th all clamps were out and by July 16th all the packing had been removed. The wound healed slowly and she was discharged on July 31, 1934.

It might be of interest to note that when she left the operating room she was ordered an intravenous infusion, and an interne, who apparently knew nothing of her history although she had been in the hospital three weeks, was called in to give it. Seeing the right arm in a splint he gave it in the left median vein and had no difficulty at all. Apparently the axillary vein was not involved in the accident.

She was last seen four days ago. At that time she had perfect use of her arm and shoulder. Her blood pressure in her right arm was 130/80. No blood pressure reading was obtained on the left side but the needle began fluctuating at 100. No satisfactory radial or ulnar pulsation could be felt at the left wrist. Dr. Eugene Lowenberg very kindly checked up the two extremities for me, and he reported that the oscillometric index in the right upper arm was 4, in the left upper arm 2. The temperature reading of the right thumb was 29.5 C. and the left thumb 28. In other words, there has been a return of about 50 per cent of the blood supply to that arm through collateral circulation.

H. G., colored, married, age 27 years, was admitted to the hospital through the Emergency Room at 5 A. M., June 30, 1935. There was a stab wound in the left third interspace about 5 cm. from the mid-sternal line. The entrance record states that the man was semi-conscious, had a pulse rate of 56 and a respiratory rate of 25. He was cold and clammy. The breath sounds on the left side were distant and the heart sounds were muffled and could scarcely be heard. He was taken immediately to the Operating Room and an incision through the third, fourth and fifth costal cartilages was made.

A lateral incision was made from each end of this longitudinal one towards the left. The ribs and the chest wall were then turned back like a trap-door. The pleura had been opened, the left lung was collapsed and there was about 500 c.c. of blood in the left pleural cavity. The pericardium had a stab wound about 2 cm. long in the upper portion. It was filled with blood, very tense and no pulsation could be felt. The pericardium was incised and the blood evacuated. The heart was apparently in a flutter. Four sutures of number 0 atraumatic chromic catgut were taken in the heart muscle, closing the wound and entirely controlling the hemorrhage. The pericardium was emptied of all blood and closed with interrupted catgut sutures without drainage. The pleural cavity was emptied of blood by suction and the chest wall closed without drainage. The cut ends of the costal cartilages were sewed together with number 2 chromic catgut. After the chest wall had been made air-tight an attempt was made to expand the lung by forcing carbon dioxide.

This method of closure did not prove to be satisfactory, since, in spite of the catgut suture, there was an overlapping of the cut edges of the costal cartilages with each respiratory play, which proved quite discomforting to the patient. Should another occasion arise, I think I would be inclined to remove the costal cartilages entirely or else to cut them in a V-shape to allow for a more satisfactory closure. His first temperature record following the operation was 103, with a pulse rate of 120. It fluctuated between 99 and 104, usually being moderately elevated. His pulse rate ran from 100 to 140 and his respiratory rate from 20 to 45. Almost from the first he was irrational. This has been reported by other observers following heart injuries and is thought to be due to cerebral anemia during the period of tamponade. He accumulated fluid in his chest and on July 5th 300 c.c. of bloody serum was withdrawn. On July 6th his chest was X-rayed and the X-ray report states, "The findings are indicative of a fairly large collection of fluid in the left pleural cavity. There is apparently no appreciable amount of fluid in the pericardium." He was re-aspirated and 300 c.c. of sero-purulent fluid withdrawn. This showed a staphylococcus on culture. Incidentally, his blood Wassermann was four plus. The entire incision in his chest wall became infected and he was sucking air through numerous openings along the incision. We attempted to Dakinize the pleura and the incision without benefit. He died on July 11, 1935, eleven days after his injury.

The autopsy showed that the wound in the heart and pericardium had healed. There was about 30 c.c. of serum in the pericardium. The anterior surface of the heart was adherent to the suture line in the pericardium. The entire left pleura and incision was badly infected and oozing pus. This case is reported because we consider it a successful closure of a stab wound of the heart. The fact that the man died of an empyema and an infection of his chest wall apparently we could not prevent.

A. F. O., white, male, married, age 38 years, admitted to the Norfolk Protestant Hospital January 23, 1933, with the following history: Twenty-seven years ago the patient was struck on the inner side of the right ankle with a piece of metal cap from an exploding shell. He had no great difficulty at this time but noted several months later that he could feel a thrill to the touch over the inner side of his right ankle. He had no further trouble with it except that occasionally he would have aching over this area.

About three or four weeks ago the buzzing became more severe and the aching feeling more frequent. Occasionally his ankle would swell. The swelling would remain for about a week and then disappear for a time. About two years ago he noticed a red spot on the inner surface of his ankle. This gradually broke down and about four days ago began to bleed. The patient's general health has been good. His physical examination is negative except for a marked thrill to palpation from the upper half of his foot to the lower third of the leg. A definite bruit can be heard over this area, there is no swelling of the ankle. His blood pressure is 134/72 and his heart is normal.

Under tourniquet control the aneurysm was exposed. The piece of shell cap was removed, the dorsalis pedis was ligated and several small arteries and veins coming into the sac tied and the sac removed. The wound was closed without drainage. On January 29th a progress note states, "The wound is clean and healed. There is still a distinct bruit to be heard at one point on his foot but the thrill has disappeared." He was discharged on this day.

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He was re-admitted to the hospital on July 7, 1935. Chief complaint was pain and swelling in right leg and foot. He had gradually had a return of both bruit and thrills over the inner side of his foot and he has experienced attacks of palpitation of the heart following exertion. His circulatory examination was negative except for a blood pressure reading of 115/65. The rest of his examination was negative except that the right leg showed numerous small varicosities. Just below the inner malleolus there was considerable pulsation and, over an area the size of a silver dollar, a continuous thrill could be felt and a definite bruit heard. This could be made to disappear by pressure above the pulsation.

At this operation all communicating vessels were removed down to the ligaments. His wound healed promptly and on his last examination there had been no return of the bruit. However, the sensory nerve supply of the inner side of his foot had been cut and he was complaining rather severely of numbness. This probably is an arterio-venous aneurysm of the sircoid type.

H. B., colored, married, age 43 years, was admitted to St. Vincent's Emergency Room May 12, 1935, having been shot with a pistol in the right thigh and leg just below the knee. He walked in. His wounds were dressed and he went out. Later on during the night he was re-admitted. He ran an irregular temperature which went as high as 104. On May 16th a bullet was removed from the muscle of the right leg about six inches below the knee under a local anesthetic. On May 21st the chart states, "There is considerable pulsation around the wound in the lower leg and a definite bruit heard on auscultation." His temperature was normal. There was no reason to suppose he had any bone injury since he had walked in the hospital on his first admission and, judging from the tract of the bullet, the anterior tibial artery was the one involved, so we felt perfectly safe in cutting down on the aneurysm and ligating this comparatively small vessel. We saw no reason for waiting the usual length of time for the establishment of collateral circulation from traumatic aneurysms.

At operation, much to our surprise, we found that the bullet had passed through the posterior surface of the tibia and that several small fragments of bone had been driven into the tissue, severing the posterior tibial artery. It was impossible to repair it and, with a good deal of concern as to the outcome, it was double ligated. Several small pieces of bone were removed and the wound closed. He ran some little temperature following his operation but was discharged from the hospital on June 12, 1935.

R. W., colored, male, age 20 years, was admitted to the Emergency Room with a stab wound of the left arm just above the elbow with very severe hemorrhage. The wound was packed, a tight dressing applied and he was told to return to the Out-Patient Department for subsequent dressings. Two or three days later he came in the dressing room and the packing was removed. He bled so badly that it had to be repacked and he was admitted to the hospital on April 22, 1931, and hot moist dressings were applied to his arm. On May 2nd the chart states, "The arm remains markedly swollen and hard; no pulsation felt over the swollen area but there is a distinct bruit all over it. The patient says his hand feels numb; no radial pulse can be felt. Impression, a dissecting aneurysm of the brachial artery with a large hematoma."

On May 6th this hematoma was explored. A long slit was found in the brachial vein which was repaired. The brachial artery apparently was not injured. All bleeding points were ligated, the wound closed with a drain and he was returned to bed. There was an almost immediate return of his radial pulse. He made an uninterrupted recovery and left the hospital on May 19th.

Medical Arts Building.

DISCUSSION

DR. I. A. BIGGER, Richmond: I was very much interested in Dr. Rawl's paper. He has presented an extremely interesting group of cases and I was especially interested in the vascular cases. It seems to me that what he said in regard to the importance of equipping hospitals to take care of vascular injuries was very appropriate. It is also essential that surgeons obtain experience in vascular work, and this can best be done in the experimental laboratory.

There are one or two points I would like to make in regard to wounds of the heart and intrapericardial portion of the great vessels. The real difficulty in handling such wounds seems to be in making the correct diagnosis, which is more difficult and just as important as the treatment.

Dr. Rawls pointed out one thing in regard to his case which I think is very significant and with which I have recently been impressed. He stated that when the pericardium was exposed, it was so tense that pulsation could not be seen. We have found that in questionable cases,

where a wound of the heart is suspected, a great deal of valuable information can be gained by fluoroscopic examination. An almost complete absence of pulsation of the cardiac shadow is a very important diagnostic point. The heart may appear quite immobile. It is my impression that many of these cases are operated upon too hurriedly, some without proper examination. Certain ones are great emergencies and have to be operated upon immediately, especially those with free bleeding from the pericardium. My experience has been that most of the others are not great emergencies, but operation should, of course, not be unduly delayed. They can be tided along by intravenous fluids and frequently repeated small doses of adrenalin until a proper examination has been made, and the operating room set up with sterile precautions.

I enjoyed Dr. Rawls's paper very much.

DR. RAWLS, closing the discussion: I only want to report a case of Dr. Willcox Ruffin's. This man was admitted to the emergency room eleven days ago with a stab wound of the heart. It was repaired by Dr. Ruffin and he has made an uneventful recovery and is now sitting up. I asked Dr. Ruffin to report it but he declined to do so. He offered to allow me to exhibit the man at this meeting but I did not like to take that much risk with his patient.

ACUTE SMALL BOWEL OBSTRUCTION--A STUDY OF 100 CASES.*

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Despite the advances made by surgery during the past fifty years, the mortality from intestinal obstruction has been lowered but little and it now ranks as the most fatal of the more common surgical conditions.

In 1888, Reginald Fitz[1] reviewed 146 operative cases of intestinal obstruction. The mortality was 70 per cent. In 1929, Miller,[2] in a study of 343 surgical cases of intestinal obstruction in the Charity Hospital and Touro Infirmary, of New Orleans, reported a mortality of 60 per cent. Christopher and Jennings,[3] in 1934, collected 2,345 cases from widely scattered American clinics with a mortality of 46.5 per cent.

Intestinal obstruction, or ileus, is usually divided into three groups. Mechanical ileus, the most frequent type, results from a stoppage of the fecal current by any obstruction to the lumen of the bowel. Adynamic, or paralytic ileus, results from nervous or toxic influences and occurs most often from peritonitis, operative trauma or from reflex causes, as a stone in the urinary tract. Dynamic or spastic ileus follows certain poisons, as lead colic, or nervous system lesions as tabes. Dynamic and adynamic ileus have no surgical significance other than the occasional problem of differentiation from mechanical ileus.

Mechanical obstructions may be acute or chronic depending upon whether the obstruction is complete or incomplete. The majority of obstructions in the small bowel are extrinsic in origin or due to pressure from without. The active peristalsis in the small intestine usually results in an incomplete obstruction rapidly becoming complete so that the majority of obstructions in the small bowel are acute. The majority of obstructions in the large bowel are intrinsic in origin, or due to blockage within the lumen. The more sluggish peristalsis in the colon permits an incomplete obstruction to persist for considerable periods of time, so that the majority of chronic obstructions are found in the colon.

Mechanical obstructions may also be divided into simple obstructions, due to pressure without immediate circulatory changes, and complicated obstructions in which vascular changes occur early as a result of pressure on the mesenteric vessels.

The traditional signs and symptoms of an acute mechanical obstruction are: pain, vomiting, distention and constipation. Pain in small bowel lesions is usually abrupt in onset, paroxysmal in character, and localizes about the center of the abdomen. In large bowel obstructions, the onset is slower, the pain recurs at longer intervals and the point of localization is more variable. Vomiting occurs early in small bowel lesions. The first emesis is reflex in nature and usually consists of gastric contents. This is followed by a latent period of varying time

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which is thought to be an index of the distance of the obstruction from the pylorus. Regurgitant vomiting of bile and intestinal contents then begins and this continues until terminated by operative interference or death. Reflex vomiting is frequently absent, and regurgitant vomiting is usually late in large bowel lesions, and sometimes does not occur. The offensive, brownish vomitus often noted in late obstructions of the lower ileum is noticeably absent in obstruction of the colon.

Distention of the abdomen varies considerably, depending on the location and duration of the obstruction. Lesions in the upper jejunum may cause little or no distention, due to the long collapsed distal loop of bowel more than compensating for the short loop of dilated jejunum proximal to the obstruction. In very high obstructions the abdomen may be scaphoid. Obstructions in the lower ileum are characterized by marked distention. Constipation is absolute in all complete obstructions if the passage of intestinal contents distal to the block at the onset of the ileus is disregarded. The passage of gas and feces shortly after the beginning of an obstruction is often confusing and frequently leads to the belief that an incomplete obstruction is present with resulting loss of valuable time before the true nature of the lesion is recognized.

In recent years two additional aids in the diagnosis of intestinal obstruction have been utilized. A flat plate of the abdomen following an enema to evacuate the lower bowel will show a parallel ladder-like arrangement of gas and liquid levels in small bowel lesions, or large accumulations of gas in obstructions of the colon.

Auscultation of the abdomen has been largely neglected in intestinal obstruction. The orderly intermittent low-pitched peristaltic sounds normally heard over the abdomen are usually replaced by tumultuous prolonged high-pitched gurglings synchronous with the colicky pain of an obstruction. The location of a block can frequently be determined by the point of maximum intensity, and the quality of the sounds may be of value in differentiating simple mechanical obstructions from obstructions associated with strangulation. Peristaltic sounds are notably absent in paralytic ileus.

Intestinal patterns and visible peristalsis, though frequently seen in thin individuals, are inconstant and sometimes misleading signs, as they may occasionally be present in normal subjects with relaxed abdominal walls.

The cause of death in this condition has been studied by many investigators. Death in simple acute obstructions has been variously ascribed to starvation; dehydration; loss of electrolytes, especially chlorides; to toxins formed from protein decomposition within the obstructed bowel or from toxins arising in the wall of the damaged intestine. The importance of large intravenous injections of saline is now generally recognized, but the operative procedures recommended in intestinal obstruction are far from uniform and vary from simple jejunostomies to generous resections of the involved intestine. The results, at best, are unsatisfactory and a review of the literature serves chiefly to emphasize the importance of early operation and to bear out the truth of Miller's[2] observation that the mortality increases approximately one per cent with each hour of procrastination.

Analysis of Cases

A study has been made of one hundred consecutive obstructions of the small bowel operated upon in the Medical College of Virginia hospitals during the past five years. This period was chosen as it coincides with the present system of diagnosing and filing histories used in these hospitals. This study is confined to acute mechanical obstructions of the small intestine. Intussusceptions in infants and obstructions associated with incarcerated or strangulated external herniae are not included in this series. The latter conditions are usually diagnosed with greater ease and the treatment is more standardized than in the group now under consideration.

Age Incidence

The majority of small bowel obstructions occurred in the second, third and fourth decades. The average age for the entire series was 33.6 years. The youngest patient was fifteen months old and the oldest was eighty years of age. Both of these obstructions, strangely enough, resulted from a volvulus about a congential band extending from a Meckel's diverticulum to the umbilicus.

Race and Sex

The incidence of obstructions for race and sex was: white males, 22; white females, 19; Negro males, 21; Negro females, 38. Fifty-nine were colored and forty-one were white. Fifty-seven were

females and forty-three were males. The high incidence of this condition in Negro females was due largely to post-operative adhesions or inflammatory bands following pelvic inflammatory disease.

PREVIOUS OPERATIONS

Sixty-five of these patients had previous abdominal operations. These laparotomies were for the following conditions: Pelvic inflammatory disease, 27; acute ruptured appendicitis, 20; pelvic tumors, 5; gun-shot wounds of the abdomen, 4; intestinal obstruction, 4; miscellaneous, 13.

The interval which elapsed between the previous operation and the onset of the ileus varied from a few days to many years. Seventeen of these patients developed intestinal obstructions in the hospital following laparotomies.

TYPE OF OBSTRUCTION

The obstructions were caused by the following conditions: Adhesive bands with kinking of the bowel, 72; volvulus, 11; Meckel's diverticulum, 4; internal herniae, 3; polyps of the small intestine with intussusception, 3; pelvic abscesses, 2; miscellaneous, 5.

OPERATIVE PROCEDURES

The following operative procedures were performed in order to relieve the obstruction: release of obstruction by division of adhesive bands, 37; release of obstruction with enterostomy, 24; early enterostomy, 18; resection, 6; resection with enterostomy, 6; late enterostomy, 9.

The mortality associated with the operative procedures was as follows: release of obstruction by division of adhesive bands, 14 per cent; release of obstruction with enterostomy, 33 per cent; early enterostomy, 22 per cent; resection, 50 per cent; resection with enterostomy, 50 per cent; late enterostomy, 89 per cent.

DURATION AND MORTALITY

The duration of the obstruction and the mortality were so closely associated that they shall be considered together. The duration of the symptoms varied from four hours to seventeen days. The average duration of the obstruction and mortality for race and sex was: white females, duration 2.1 days, mortality 10.5 per cent; white males, duration 2.5 days, mortality 27 per cent; Negro males, duration 3.9, mortality 38.1 per cent; Negro females, duration 4.0 days, mortality 44.7 per cent. These patients were operated upon by the same surgeons. The average duration of symptoms in the non-fatal cases was 2.5 days, and in the fatal cases 4.9 days. The mortality for the entire series was 34 per cent.

PRESENT TREATMENT

Patients who are admitted to the Medical College of Virginia hospitals shortly after the onset of symptoms and who are in good general condition are operated upon immediately. If the patient is not seen until a number of hours after the onset, vomiting has usually been a prominent symptom and the resulting loss of blood chlorides must be corrected before operation can be attempted. The stomach is washed and one or two liters of normal saline is slowly injected intravenously. If the stomach contains a large amount of material a nasal tube is inserted and kept in place during operation. A gastric lavage relieves the distention of the upper abdomen and prevents vomiting during the operation. This not only facilitates the operation but also avoids the danger of the patient aspirating the vomitus.

Spinal anesthesia is the anesthetic of choice in intestinal obstruction. The relaxation of the abdominal muscles obtained by 150 mg. of novocain permits a careful exploration of the peritoneal cavity. The contraction of the intestinal wall and mesentery which follows a spinal anesthetic lessens the intra-abdominal pressure, prevents the extrusion of viscera, and permits the operator to handle loops of obstructed bowel with less danger of traumatizing the distended intestine. If the general condition of the patient contra-indicates spinal anesthesia a local anesthetic is used. This is satisfactory in strangulated herniae or in simple procedures as enterostomies or the division of obstructing bands. The limited exposure usually obtained with local anesthesia increases the operative hazard in long-standing obstructions with markedly distended loops. General inhalation anesthesia is unsatisfactory and frequently dangerous in intestinal obstruction, and when used it should be confined to very early cases without distention.

A right rectus or a para-median incision will usually give adequate exposure in small bowel obstructions. The site of the obstruction is speedily located by tracing the collapsed bowel upward. The exploring hand whenever possible is guided by direct vision. The adjacent intestines are well pro-

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tected by warm saline sheets before the obstruction is released. Whenever possible, single narrow adherent bands are divided on both sides of the obstructed bowel; otherwise the wall of the intestine may be torn at the point of contact. After release of the adhesions the bowel distal to this point is examined in order to eliminate potential obstructions below the level of the original block. Following the release of the obstruction the question arises as to the necessity for an enterostomy. This is indicated in all cases of late obstruction and whenever there is a possibility that the circulation may be inadequate. When in doubt it is safer to do an enterostomy. A size 18 French catheter, inserted by the Witzel technique, and passed through adjacent omentum is brought out through a stab wound lateral to the incision.

An enterostomy just proximal to a mottled segment of bowel with embarrassed circulation will frequently permit a traumatized loop of intestine to regain its tone, and a resection will be avoided. If the vascular changes have advanced beyond the point of probable viability, the bowel will have to be extra-peritonealized or resected. Exteriorizing the bowel is a useful procedure if the intestine proximal to the obstruction is too distended to permit resection, but the method should be used with caution when the obstruction is in jejunum. If the bowel becomes gangrenous a fistula will result and closure will be difficult if not impossible. Frank necrosis of the obstructed loop necessitates resection. If the proximal intestine is greatly distended an enterostomy above the anastomoses will protect the suture line and leakage will be prevented.

Following operation, the patient receives nothing by mouth for several days. Frequent intravenous injections of normal saline containing 5 per cent dextrose are given and daily determinations of the blood chemistry are made. If the abdomen becomes distended a nasal tube is inserted and permitted to remain until normal peristalsis returns. The patient is placed on a low backrest and turned frequently. Occasional small enemas may be given if peritonitis is not present. The enterostomy tube is clamped off after four or five days and if this is well tolerated for twenty-four hours the catheter is removed.

A simple enterostomy is of value in two types of mechanical ileus.

Early obstructions which develop a few days after operation are usually due to an exudate upon the surface of the bowel which binds the adjacent loops of intestine together. If the intestinal flow is diverted from the dilated loop for a short time the obstruction usually disappears. In high obstructions this can frequently be accomplished by syphoning the fluid from the upper jejunum through an indwelling duodenal tube. If the obstruction is in the ileum a simple enterostomy through a small incision will relieve the pressure in the dilated bowel and permit the restoration of the intestinal flow.

In late obstructions dehydration and toxemia are present and changes in the blood chemistry have occurred. Despite large intravenous injections of sodium chloride solution some of these patients are unable to withstand a major operation. In this type of case a simple enterostomy under local anesthesia may be a life-saving procedure. If the peritoneal cavity contains bloody fluid, vascular changes have occurred and the involved bowel must be brought out on the abdomen. If the peritoneal fluid is clear, a simple obstruction is present. An enterostomy will give temporary relief, and many obstructions will disappear after the release of pressure. If the obstruction is not relieved a second operation may be done when the condition of the patient has improved.

SUMMARY

The signs, symptoms and treatment of intestinal obstruction have been reviewed. One hundred consecutive cases of small bowel obstruction admitted to the Medical College of Virginia hospitals have been studied. Sixty-five of these patients had previous abdominal operations. The mortality in the white patients was 19.5 per cent and in the colored patients 42.3 per cent. The only difference in the treatment received by the two races is found in the time which elapsed before operation was performed. The colored patients were seen much later and the mortality was correspondingly higher. The mortality for the entire series was 34 per cent.

Only by prompt recognition and early operation can the high death rate in intestinal obstruction be lowered.

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DISCUSSION

DR. C. B. MORTON, University: Dr. Warthen is to be congratulated on the presentation of a series of cases which by comparison shows a mortality relatively so much lower than that of other series which he quoted. Even this mortality, however, indicates the seriousness of the problem of intestinal obstruction.

In regard to symptoms it is amazing how varied the picture may be. I am sure that everyone finds the same condition, but I would like to stress how atypical these cases may be. Sometimes the diagnosis is extremely difficult to make.

As to diagnostic procedures which may be employed, I would like to mention the X-ray and auscultation. An X-ray of the abdomen which shows "ladder-like" fluid levels may give presumptive evidence of obstruction, yet we have had several instances in which the procedure has not been entirely reliable. Positive X-ray evidence does not necessarily mean that mechanical obstruction is present. I mention this by way of indicating that in making a diagnosis we must not be guided too entirely by any one factor.

I find auscultation of the abdomen of more and more aid as a diagnostic procedure and, from talking with other men, I believe the usefulness of this method of examination is being appreciated more and more widely. It gives very valuable information in regard to the condition, its character, location, degree and other features of it.

The study of the cause of the obstruction is also interesting. The high incidence of previous operations in both the early and remote cases of obstruction sounds a word of caution to us in all our operative procedures in the abdomen, to minimize trauma of all varieties, so that adhesions and the consequent danger of obstruction later on may be reduced.

Among unusual causes of intestinal obstruction, I may mention a patient upon whom I operated recently. Obstruction was caused by a large gall-stone in the small intestine. Exploration was done because of a persistent ileus and revealed the large gall-stone, the size of a hen's egg, impacted in the lower ileum.

In regard to treatment, I think the figures illustrate very graphically the necessity of getting the patients early and doing operatively as little as possible consistent with the actual relief of the obstruction. In this connection the use of the nasal tube is a measure I would like to emphasize as a prophylactic, pre-operative and post-operative aid. We find it extremely valuable and since we began using it the incidence of enterostomy and other operative procedures in our cases of obstruction has decreased materially. A small caliber tube is passed through the nose, down the esophagus and into the stomach. The tube is anchored to the face with adhesive strips and can be retained comfortably by the patient for many hours. During this time the stomach and upper intestines can be kept empty and the patient relieved of distention, nausea and vomiting.

Again I want to congratulate you, Dr. Warthen.

DR. I. A. BIGGER, Richmond: I enjoyed Dr. Warthen's paper very much. There is one point that Dr. Warthen made that I would like to amplify, that is, the importance of attempting to determine the type of obstruction with which you are dealing.

At the Medical College of Virginia, we have been impressed, for several years, by the fact that in obstruction with strangulation we do not get the rather high-pitched, gurgling sounds which we find in obstruction due to adhesive bands. In other words, in obstruction due to adhesive bands, without strangulation, we get rather high-pitched gurgling sounds with each cramp-like pain. These sounds are, of course, heard best near the point of obstruction. On the other hand, in volvulus, intussusception, and other obstructions with strangulation, the quality of the sounds is often not changed, and not infrequently the abdomen is unusually silent.

DR. H. H. TROUT, Roanoke: I do not want to be misunderstood, but I do think it is a very appropriate time to warn against relying too much on the duodenal tube, for at times it hides symptoms of a mechanical obstruction, which otherwise would have been relieved by prompt surgical interference. In other words, we think our patients are progressing nicely when in fact a mechanical obstruction is existing. I know of no other post-operative aid which has been of greater assistance than the indwelling tube as described by Wangensteen, but, like all other good things, it has its dangers. For this reason, every single case should be made an individual study.

DR. WARTHEN, closing the discussion: I wish to thank Drs. Morton, Bigger and Trout for their discussions. I agree heartily with Dr. Trout's observations as to the dangers of the duodenal tube. We feel that this method should be limited to early and preferably high obstructions and especially those which develop in the hospital following laparotomies. If the patient fails to improve under this treatment in a relatively short time it is far safer to do a jejunostomy or some other operative procedure.

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DERMATOSES AND COLD WEATHER.*

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This paper deals with those changes in the skin resulting from cold winds, the drying effects of heated air of low humidity, the use of soap and hot water and certain individual sebaceous, or skin fat, deficiencies, as in ichthyosis. Frost-bite and gangrene from exposure to severe cold usually require surgical treatment and will not be discussed.

These effects of cold weather include chapping, dryness, roughness, cracking, peeling, redness and varying degrees of dermatitis, with burning and itching sensations. In addition the majority of all dermatoses, or abnormal skins, are injured and made worse by these effects. This is notably true of ichthyosis, certain eczemas, psoriasis, dermatitis venenata, some drug eruptions and allergic reactions. Acne vulgaris is one of the few that are benefited by the effects of cold weather.

It may be simply stated that these changes are results of a deficiency of fat and water in the horny, or keratin, layer of the skin. The normal softness and pliability of the skin is maintained by the presence in the horny layer of the correct amount of fat which keeps it soft and prevents evaporation of water. A deficiency thus produces the dry, rough, sensitive skin that may progress to redness, increased desquamation and inflammatory infiltration of the skin similar to the condition usually defined as eczema, the so-called dishwashers eczema of the hands being an example.

The amount of fat and water in the horny layer may be deficient because of: (1) excessive removal of water and fat from the skin surface, and (2) an inadequate supply from the sebaceous and sweat glands.

The excessive removal of fat and water from the skin in winter results from the increased evaporation from excessively dry, heated air in the usual heating equipment, the irritant and drying effects of cold wind and the removal of fat from the skin with soap and water. The remedies for these conditions include protection with suitable clothes and humidifying the air in the heated rooms. We cannot avoid the use of soap and water and keep the body as clean as social requirements demand. However, soap may have its fat removing activity offset by supplying fat in the form of cold cream or suitable fat mixtures applied to the skin immediately after bathing, i. e., before evaporation has had its damaging effect.

The selection of the best soap to use is difficult in view of the high pressure advertising and the advocating by detail workers of new and improved cleansing agents. The newer developments include the "super-fatted" soaps and the "soapless" soaps which are sulphonated alcohols. The super-fatted soaps contain a small excess of saponified fat and are apparently good soaps, but they are still soaps, and in cleansing the skin they combine with the fatty elements and remove them from the skin. The "soapless" soaps advocated for shampoo and skin use are neutral, and do not liberate alkali as do true soaps, but they remove the fat or oil from the skin and give the same or more marked drying effects. Their use may be of greater value in treating acne vulgaris or conditions where dryness is desired.

For cleansing purposes the plain, white toilet soap or the white tablets of shaving soaps are preferred by the writer to the more highly perfumed and colored toilet or laundry soaps. The important thing to remember is to apply the grease immediately following the soap and water and thereby prevent the damage that soaps and water may do to these dry skins.

The inadequate supply of fat to the skin is illustrated by the histology of ichthyosis, which often shows an entire absence of sebaceous glands in some skin areas. Individuals vary considerably as to the amount of greasiness of the skin and in all of us there is a lessening activity of the sebaceous glands as age advances after maturity. Sebaceous gland activity appears to lessen especially during cold weather, or to increase in hot weather. This seasonal variation may be due to the fact that more fat is burned for fuel in winter with less for the skin to excrete, to the increased cutaneous circulation in summer, or to other factors of fat metabol-

*Read before the sixty-sixth annual session of the Medical Society of Virginia, at Norfolk, October 15-17, 1935.

ism. A diet rich in fats appears to increase the greasiness of the skin in most people, regardless of the season.

In supplying grease to a skin that has too little, or has had its supply removed by soap, it should be noted that a plain oil, such as olive oil, mineral oil, or vaseline, may be well rubbed in and the excess wiped off with a soft cloth, but there is still a disagreeable shiny appearance due to the light-reflecting properties of a homogeneous oil. This may be reduced by employing mixtures of fats, as in cold cream.

It is well known that glycerine lotions will quickly and thoroughly soften hard, rough, and chapped hands. The action is a mechanical closing of the cracks by swelling the horny layer. This same softening, through swelling the horny layer, may be obtained by using soap. Soaking in water will give the same results, but requires a longer time. In addition, glycerine, because of its hygroscopic property, takes moisture from the skin and makes the dry skin even drier.

The greaseless creams, vanishing creams and many skin lotions belong in this category and are composed of soap or glycerine mixtures. They are widely advertised and extensively used. The quick action, or immediate softening effect, of these preparations has made them immensely popular. To the average person the use of these preparations seems the ideal way to obtain and keep a soft and pliable skin. Yet, knowing the effect of these soaps on the skin, we see it depletes the fat supply of the horny layer, the very thing that should be avoided. The use of these preparations results in an after-effect that makes their repeated use necessary. This, in turn, leads to the dried, rough, eczematous condition as from excessive use of soap and hot water. If these greaseless vanishing creams and lotions are used, they should be washed off with water as you would do any soap, and where the sebaceous activity does not keep pace with the needs, the use of a suitable fat or oil mixture should be employed—before the fat-poor skin has cracked and roughened from evaporation. After applying the grease, oil, or cold cream, the skin areas may be wiped with a soft cloth, for the thinnest possible covering of the horny cells will maintain normal moisture and softness.

The mild or cold weather type of ichthyosis may be handled satisfactorily with care as to the use of soap and applying fat preparations to maintain normal greasiness. The severer cases require the addition of salicylic acid, or other keratolytics, along with the use of thyroid extract.

SUMMARY AND CONCLUSIONS

The irritant effect of cold weather on the skin is mainly due to loss of fat from the skin surface, or to a decrease in the fatty secretions of the skin, resulting in increased evaporation and dryness.

The greaseless creams and lotions contain soaps or glycerine, and give temporary softening of the skin, followed by increased loss of fat and water from the skin, and aggravation of symptoms.

Loss of fat and water from the skin may be largely offset by the use of a thin coating of cold cream, applied immediately after washing, before evaporation has occurred.

812 Medical Arts Building.

DISCUSSION

DR. D. C. SMITH, University: This paper by Dr. Kimbrough brings to our attention two or three practical subjects. The first is the importance of this thin layer of horn that covers our body. Very few of us stop to think about how important these few millimeters of cornified, or hornified, tissue is to us. Try to imagine what we would feel like and what we would look like if our bodies did not have this epithelial covering. If our body surface was made up of ordinary mucous membrane, like the inside of the mouth for example, our comfort in coming in contact with the outside world and our appearance would be very different. This thin layer of protecting substance that covers our body develops from a single layer of columnar cells that is the basal epithelium. From these cells, going through the process of hardening and death, there develops this flat, squamous epithelium, which is our main protection so far as our environment is concerned. In addition we have the secretions from the oil glands and sweat glands, which also help in protecting us from our environment. Because of this very effective way of protecting our body surface, we forget sometimes how important it is and how much it means to us. In certain individuals who have congenital anomalies, like ichthyosis, where the glands do not develop properly or are not present in sufficient numbers, we have conditions that can be very uncomfortable. The care that this part of our body and its function should have is well worth while being brought to our attention.

In very close connection with this is the big question of cosmetics, using that term in a very general way, including cleansing agents, soaps, etc. The American public, and the medical profession as well, has certainly been put on the sucker list so far as this subject is concerned. We are paying thousands of dollars for things

just because we see them advertised in the magazines and daily papers. Dr. Kimbrough's paper brings to our attention the fact that physicians, at least, ought to approach this subject from a basic, simple knowledge having back of it a certain amount of information in regard to the physiology of this part of our body and the chemical and biological action of certain every-day-used things like soaps, cold creams, and so forth.

A VERY SATISFACTORY OPERATION FOR PTERYGIUM.

NEILSON H. TURNER, M. D.,
Richmond, Va.
Associate in Ophthalmology at the Medical College of Virginia.

This method of operating for pterygium, which I have used for several years and which gives prompt and gratifying results, is, like that of McReynolds and that of Fox, an elaboration of Desmarres' original operation. It differs from that of McReynolds in that the conjunctiva is separated from the upper border of the growth from the limbus toward the canthus for about one-fourth of an inch, the greater portion of the growth including this free superior margin is buried behind the lower part of the conjunctiva, and the denuded area is covered by conjunctiva. It is unlike the method of Fox in that the conjunctival incisions at the upper and the lower borders do not extend for the entire length of the growth, and the denuded area to be covered by conjunctiva is not as extensive.

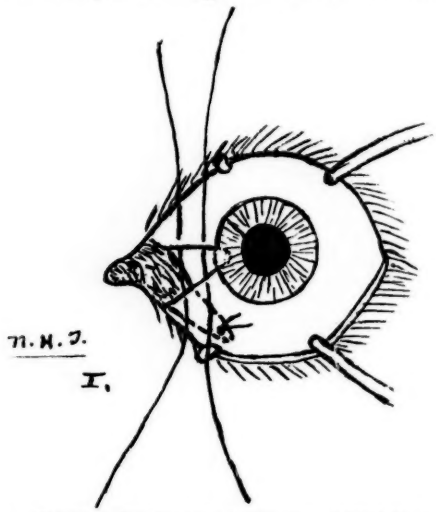

Fig. 1.—The pterygium has been drawn down behind the bulbar conjunctiva below, and the knot tied to hold it in position. The sutures to close the conjunctiva are in place ready to be tied.

The procedure is as follows: Grasp firmly and completely the neck of the growth with strong fixation forceps, then pass the Graefe knife between the pterygium and the sclera, but close to the latter, at that point. If desired, the cutting edge of the blade can be turned toward the cornea, and every particle of the invading mass can be carefully shaved from the cornea; or, after making the incision, the knife can be withdrawn and the growth separated from the cornea by blunt dissection by using a muscle hook. With the fixation forceps still in position, incise with the scissors the conjunctiva at the lower border of the growth, from the limbus toward the canthus for a distance of from one-fourth to one-half of an inch, as the case may require. By blunt dissection the conjunctiva below is undermined.

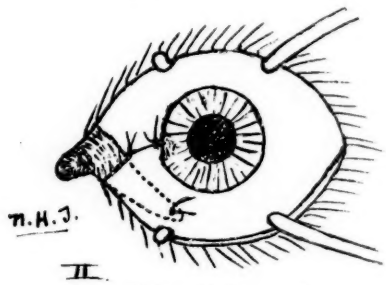

Fig. 2.—The completed operation.

Then, in the same manner, separate the growth from the sclera. Now, with the scissors, incise the conjunctiva at the superior border of the growth, from the limbus toward the canthus for from three-sixteenths to about one-fourth of an inch, care being used so as not to include the pterygium in the incision. The conjunctiva above should be freely undermined. A black silk thread, with a curved needle at each end, is to be carried through the tip of the growth, both needles being pushed through from the posterior side to appear on the anterior surface, separated at an adequate distance to hold firmly. The two needles should now be carried down behind the loosened conjunctiva and brought out

anteriorly about one-fourth of an inch apart near the fornix and approaching the ocular midline. With the lower conjunctiva held out of the way, traction by drawing on the first loop in the knot will cause the tip and the adjacent portion of the growth to come down behind the conjunctiva. The knot should now be tied, leaving enough thread to allow for easy removal of the stitch. The edges of the undermined conjunctiva above and below are now approximated and stitched together in such a manner as will completely cover the denuded space to the corneal margin. Conjunctival incisions at the limbus, if necessary, can be made to properly cover the exposed sclera. There is no objection to a slight over-lapping of the corneal edge by the conjunctiva. Usually two stitches are necessary. The stitches can be removed in about a week, and, as a rule, healing is complete in from another seven to ten days. Quick healing with a prompt cosmetic effect, and rapid degeneration of the pterygium are the results to expect.

200 East Franklin Street.

NEISSERIAN SMEARS FROM THE PROSTATE AND SEMINAL VESICLES—FINAL REPORT.

W. M. BOWMAN, M. D.,
Petersburg, Va.

In the December, 1934, issue of the VIRGINIA MEDICAL MONTHLY, the writer published a preliminary report on the reliability of smears from the prostate and seminal vesicles as a test of "cure." This final report, based on a total of fifty-two cases, bears out the original conclusions with a high degree of accuracy and dependability. The apparent apathetic attitude toward this prevalent and widespread disease, which often leads to untold misery and damage, is beyond any sane comprehension. The diversity of methods and results justifies the publication of any additional "check-rein" or so-called test of "cure." It means a little more work, perhaps, for the physician but he will be rewarded by the fact that certainly a larger percentage of "cured" cases will be released. The recently organized American Neisserian Medical Society places the gonococcus on the spot, and undoubtedly will lead to a more uniform investigation and treatment. Hardly any two physicians employ the same methods in the handling of these cases. A method that gives good results in the hands of one physician acts like dynamite when used by another. Some cases get well in spite of treatment, while others do likewise with no treatment at all. Almost over-night some cases change from a normal course to an alarming situation and *vice versa*. The situation is a deplorable state of affairs and demands a more serious united attack. After all, we are dealing with a potentially serious disease, and should handle the case with this in mind, instead of a mere snap of the finger, if we wish to curb the spread of this particular social disease.

In the past several years the writer has tried various and sundry methods of treatment and has finally been convinced that gentle, simple methods, instituted at the proper stage of the disease, gives just as good results as the more complex ones. Handling these cases with the greatest of care cannot be too strongly emphasized. For the past eighteen months office treatments only, without the additional outside treatments, gave satisfactory results and decreased complications 75 per cent. Local treatment is certainly the choice over oral medication and, in general, it is safe to say that there is no reason to delay the former. Routine irrigations have been discontinued and are only used occasionally in a chronic or very resistant case. Local injections seem to do the work satisfactorily with less danger of producing complications. The preparations for local use have been sifted down to neutral acriflavine (1:4,000), mercurochrome (1 per cent), pyridium (1:1,600), and rivanol with dextrose (1:1,000) any one of which may be used as daily office injections, although the writer personally prefers the first named drug. In case it is desired to use additional outside treatments, the silver preparations, neosilvol (5 to 10 per cent) and protargol (½ per cent) will be found entirely reliable. Neosilvol should be used in the earlier stages of the disease, and protargol in the later part, especially when the discharge has just about ceased or apparently stopped. The stimu-

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lating effect produced by protargol on the mucous membrane usually increases or brings back the discharge but lacking its former yellowish color. This may last from several hours to a few days. If oral medication is desired along with local treatments, santal oil has been found to be about as good as anything. The alkalies may be used if necessary for short periods of time with good results so far as decreasing the burning. Sounds and bougies are very important instruments only when used at the proper time and with undue care. Vaccines and the like have been used in selected cases as an adjunct only, but the results have not been definite enough to say that any benefits were derived. The results obtained from massages were closely studied and have been found to be indispensable from the treatment standpoint and as a means of test of "cure." A properly fitted suspensory bag is a good routine to follow in each case to help decrease the chances of complications. Automobile trips have been found to be one of the worst factors in producing flare-ups and more or less constant trouble.

In the fifty-two cases herein reported, additional interesting data has been collected. A total of 6,078 days of observation and treatment were involved in this series. The minimum period was eight weeks, the maximum forty-four weeks, and the average 117 days. The minimum time of "cure" was three days, the maximum twenty-six weeks four days, and the average seventy-two days. The average age was 27 years. The number admitting they were drinking at the time the disease was contracted was 88 per cent. Seventeen, or 32.6 per cent, were married men, and of this number 17.5 per cent infected their wives. Those who had previously received treatments from pharmacists numbered 7.6 per cent, while 7.6 per cent had self-treatment, and 13.4 per cent were treated by other physicians. Those presenting complications at their initial visit amounted to 11.3 per cent. All smears were examined by the State Health Department. Initial smears were also examined in the writer's laboratory. It is interesting to note that in 11.7 per cent of the cases the State laboratories did not agree on the initial smears but on later ones did. In one case four smears were sent at intervals before a positive was obtained, and in another case thirty days elapsed before they found the gonococcus. A total of 412 smears were taken on the fifty-two cases, 333 being from the prostate and seminal vesicles. As a reliable means of test of "cure" the massages should be made about twice a week. Relying on a single smear from this source, the chances are that you are 21 per cent wrong. In the case of two consecutive negative smears the error is 11.7 per cent. In the case of three and four negative smears the error is only 1.9 per cent. In only one case did it occur that three consecutive negative smears were obtained and the fourth showed positive gonococci. Also, in only one case were four such smears followed by a fifth positive. One of these cases gave a history of having had a chronic condition with several acute flare-ups, while the other followed a very irregular course and became chronic. Not a single case (initial attack), following a normal course without complications, resulted in a positive smear after three consecutive negatives were obtained. In all other cases, after five consecutive negative smears were obtained, not a single case resulted in a positive. In the original report the following conclusion in regard to the reliability of smears from the prostate and seminal vesicles, in so far as indicating the absence or presence of the gonococcus, remains the same, namely:

(a) In the average acute case (initial infection) following a normal course, at least three consecutive smears should be obtained. In all other cases the original conclusion has turned out to be 98.1 per cent accurate. In order to further minimize the chance of error, the second conclusion should read as follows:

(b) In chronic cases, cases with a history of repeated attacks, and those with complications, at least five consecutive negative smears should be obtained.

An unusual amount of labor and patience has been necessary to reach these simple conclusions and, while the work may not appear to be highly scientific, it is believed that the procedure will prove to be exceedingly helpful. Interest in the results not only made an otherwise monotonous work really enjoyable but has certainly made the writer feel more satisfied as to releasing a larger percentage of "cured" cases.

101 Liberty Street.

Public Health Statistics

I. C. RIGGIN, M. D.
State Health Commissioner of Virginia

The communicable disease report received at the office of Dr. G. F. McGinnes, State Epidemiologist,

for the month of March, 1936, shows the following cases compared with the same month in 1935:

	1936	*1935*
Typhoid and Paratyphoid	12	10
Diphtheria	57	85
Scarlet Fever	232	276
Measles	649	5,529
Meningitis	72	25
Poliomyelitis	1	1
Rocky Mountain Spotted Fever	0	1
Typhus Fever	0	0
Undulant Fever	0	6
Tularaemia	1	2
Smallpox	0	1

With the advent of spring and warmer weather our thoughts naturally turn to plans for the summer vacation. The mountains, the seashore, the camps and resorts again beckon and invite us to forget the strains of the past winter and in bold terms to "regain our health."

A few will see further than the sandy beach or the cool lake and will want to know what measures are taken here to protect their health. Some will consult their physicians regarding the safety of the vacation at a particular place or community.

The majority, however, will give no thought to these important precautions. They heed not the fact that their travels may carry them to places much below the sanitary status of their home community, that they may drink polluted water and unsafe raw milk.

A few timely suggestions and advice by the family physician may do much to insure safer vacations for the coming season. Mindful of the fact that this season is also the one of highest incidence of typhoid fever, he can indeed render a service by urging immunization against this disease. This simple and safe procedure is of proven value and cannot be too strongly advocated particularly for those who travel, children going to summer camps and those living in localities where the disease is endemic.

A little forethought can do much to eliminate the popularized expression of "returning home to convalesce from a vacation."

New Members

Since the names listed in the October, 1935, issue of the MONTHLY, the following have been admitted to membership in the Medical Society of Virginia:

Dr. Benjamin Randolph Allen, Richmond.
Dr. Nathaniel Talley Ballou, Jr., Fredericksburg.
Dr. Raymond August Berger, Richmond.
Dr. William Bickers, Richmond.
Dr. Rex Blankinship, Richmond.
Dr. Charles Atlas Bland, Clover.
Dr. Claude J. Bradshaw, Carrsville.
Dr. Ernest Perry Buxton, Jr., Richmond.
Dr. Julius Caplan, Portsmouth.
Dr. Elizabeth Cocke Cole, Norfolk.
Dr. Frank Dunnington Daniel, Charlottesville.
Dr. William Edwin Dickerson, Danville.
Dr. Hunter McGuire Doles, Norfolk.
Dr. Sylvester Amos Draper, Roanoke.
Dr. Granville Eastham, Culpeper.
Dr. William Lloyd Eastlack, South Boston.
Dr. Porter Burks Echols, Lynchburg.
Dr. Thomas Bascom Ely, Jonesville.
Dr. James Quincy Gant, Jr., Richmond.
Dr. William Lemuel Griggs, Jr., St. Charles.
Dr. Bernard Candler Grigsby, Bonny Blue.
Dr. Henry Hamilton Hammer, Chatham.
Dr. Edwin Adams Harper, Lynchburg.
Dr. Horace Rowe Hicks, Highland Springs.
Dr. Julius J. Hulcher, Richmond.
Dr. Mary Elizabeth Johnston, Tazewell.
Dr. Orvin Clarence Jones, Newport News.
Dr. Thaddeus Elmore Jones, Portsmouth.
Dr. Clarence Edwin Keefer, Lynchburg.
Dr. Lawrence Bernard Kelleher, Richmond.
Dr. James Paul Kent, Altavista.
Dr. Allen Whedbee Lane, Blackstone.
Dr. George Walne Leavell, Bristol.
Dr. Luther Burton Lowe, Pearisburg.
Dr. Francis Henry McGovern, Danville.
Dr. John Braxton McKee, Winchester.
Dr. Walter McMann, Danville.
Dr. John Glen McNiel, Pennington Gap.
Dr. Roger Gregory Magruder, Charlottesville.
Dr. Edward Bruce Mewborne, Newport News.
Dr. Walter Lewis Nalls, Richmond.
Dr. Beverly Wilkins Nash, Timberville.
Dr. Edward Berkeley Neal, Emporia.
Dr. Joseph Forrest Phillips, Newport News.
Dr. Walter Albert Porter, Hillsville.
Dr. W. I. Prichard, Richmond.
Dr. Charles Walton Purcell, University.
Dr. Samuel A. Reynolds, Callands.
Dr. Louis Benjamin Sheppard, Richmond.
Dr. Edmond Lafayette Sikes, Pound.
Dr. George W. Skaggs, Dublin.
Dr. Daniel C. Steelsmith, South Boston.
Dr. Philip D. Stout, Bristol.
Dr. Earley Thomas Terrell, Jr., Williambsurg.
Dr. John Hansford Thomas, Jr., Greenville.
Dr. James Gordon Trant, Richmond.
Dr. William Lawrence Weaver, Richmond.
Dr. William Francis Wild, Suffolk.
Dr. Herbert DeGrange Wolff, Jr., Alexandria.

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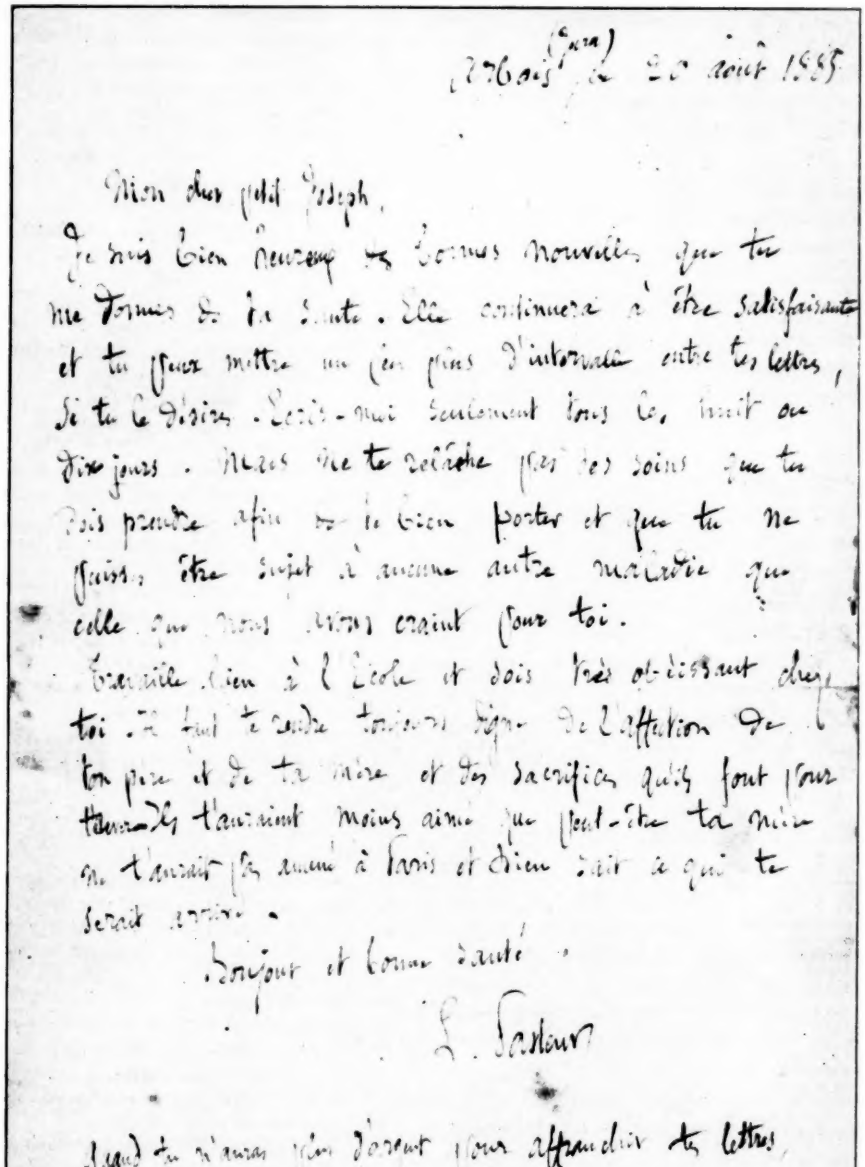

Paris (Jura) le 20 août 1885

Mon cher petit Joseph,

Je suis bien heureux de bonnes nouvelles que tu me donnes de ta santé. Elle continuera à être satisfaisante et tu pourras mettre un peu plus d'intervalle entre tes lettres, si tu le désires. Ecris-moi seulement tous les huit ou dix jours. Mais que ta recherche pour tes soins que tu dois prendre afin de te bien porter et que tu ne puisses être sujet à aucune autre maladie que celle que nous avons craint pour toi.

Travaille bien à l'Ecole et sois très obéissant chez toi. Il faut te rendre toujours digne de l'affection de ton père et de ta mère et des sacrifices qu'ils font pour toi. Ils t'aimeraient moins aimé que peut-être ta mère ne t'aurait pas aimé à Paris et bien sûr à qui te serait arrivé.

Bonjour et bonne santé.

L. Pasteur

Quand tu n'auras plus d'argent pour affranchir tes lettres, dis-le moi. Je t'enverai une nouvelle provision

L.P.

PHOTOSTAT OF LETTER FROM PASTEUR TO JOSEPH MEISTER.

Correspondence

A LETTER FROM PASTEUR TO JOSEPH MEISTER.*

On August 20, 1885, Louis Pasteur wrote to Joseph Meister, then a boy and the first human being to be cured of rabies by the treatment which was originated by Pasteur. On the reverse of the accompanying photostat copy of Pasteur's letter appears Joseph Meister's autographed statement of the date of his vaccination, July 6, 1885, six weeks preceding the date borne by this letter by Pasteur.

Arbois, (Jura), le 20 août, 1885.

Mon cher petit Joseph,

Je suis bien heureux des bonnes nouvelles que tu me donnes de ta santé. Elle continuera à être satisfaisante et tu peux mettre un peu plus d'intervalle entretes lettres, si tu le désires. Ecris-moi seulement tous les huit ou dix jours. Mais ne te relâche pas des soins que tu dois prendre afin de te bien porter et que tu ne puisses être sujet à aucune autre maladie que celle que nous avons craint pour toi.

Travaille bien à l'Ecole et sois très obéissant chez toi. Il faut te rendre toujours digne de l'affection de ton père et de ta mère et des sacrifices qu'ils font pour t'élever. Ils t'auraient moins aimé que peut-être ta mère ne t'aurait pas amené à Paris et Dieu sait ce qui te serait arrivé.

Bonjour et bonne santé

L. PASTEUR

Quand tu n'auras plus d'argent pour affranchir tes lettres dis-le moi. Je t'enverrai une nouvelle provision **L. P**

Arbois, Jura, August 20, 1885.

My dear little Joseph:

I am very happy at the good news which you give me about your health. It will continue to be satisfactory and you can allow somewhat longer intervals between your letters if you wish. Write to me only every eight or ten days. But do not relax the care which you must take in order to be well and to be liable to no other illness than the one which we have feared for you.

Work well at the School and be very obedient at home. You must always prove worthy of the affection of your father and mother and of the sacrifices which they are making to bring you up. If they had loved you any less, perhaps your mother would not have brought you to Paris and God knows what might have happened to you.

Good day and good health, L. PASTEUR

When you have no more money for postage tell me. I will send you another supply.

L. P

*Kindly sent the VIRGINIA MEDICAL MONTHLY by Theodore C. Merrill, M. D., Paris.

Miscellaneous

Findings of the Mental Hygiene Section of the Conference of Social Work.

At its first meeting several months ago, the Mental Hygiene Committee decided to concentrate on the formation of a Mental Hygiene Society to coordinate medicine, social work, education, etc., and hence the Conference program was planned with the idea of stimulating interest and action. At our first session of the Conference a motion was carried to the effect that an organizing committee be appointed by the Chairman of the Section to draw up tentative plans for the structure of a society. (Dr. George Stevenson of the National Committee of Mental Hygiene gave a number of suggestions.) Ultimately we hope to interest a group consisting of representation from the pertinent fields, with leadership coming from the medical field, particularly psychiatry. The purpose of the Mental Hygiene Society will be: to work for conservation of mental health; to prevent nervous and mental disorders and

mental defects; to help raise standards of care and treatment of those suffering from disorders and defects; to secure and disseminate reliable information; to cooperate with Federal, State, and local agencies.

The papers this year and last have brought facts to our attention, facts which an adequately organized society with a wide membership and a definite mobilizing mechanism could bring to the attention of the public and handle constructively. Certainly right now we are richly supplied with projects demanding concerted activity. We are beginning with the idea that the success of our society will depend upon interest and organization more than on money.

Certain of the recommendations made at the Conference last year and not included in the findings at the time are being carried over this year: 1. Psychopathic hospitals attached to the Medical College and University of Virginia for observation and early treatment of patients, also hospitals in conjunction with general hospitals in Norfolk and Roanoke; 2. A parole system for patients discharged from mental hospitals; 3. Recommitment of mentally sick to private institutions rather than to State hospitals when able to pay; 4. The State should not be allowed to operate private hospitals in competition with private mental institutions; 5. It should be mandatory upon a trial judge to order a psychiatric examination before trial of all persons indicted of felonies.

This year's papers and the discussions brought out specific suggestions for our consideration. A study of the part played by mental hygiene in the prevention of criminal conduct revealed intellectual inadequacies in 91 per cent of the men sent to the State penitentiary. Vocational training and psychiatric treatment within the institution was advocated so that upon discharge there can be a better chance of adjusting to society. Probation was recommended in those cases which psychiatric examinations show might adjust under supervision,—therefore need for probation officers with case work skill. When children, potential criminals, i. e., those retarded mentally, could be dealt with satisfactorily in schools equipped to offer special training, early in life they could develop feeling of adequacy to seek and maintain social, economic, emotional security to cope with life situations.

A psychiatric clinic in a Medical College Dispensary with a full-time professor as director, two associate professors, and an adequate staff of social service was seen as a very real need, and such a set-up could be developed out of the situation existing now. A psychiatric institute for doctors, social workers, and medical students would provide excellent training for the handling of social and mental problems.

The social workers and psychiatrists in an attempt to clarify their respective jobs in meeting mental health problems pointed out that they have much to learn from one another. The doctors look to the social workers for an explanation and interpretation of the social factors in the lives of those people referred for specialized treatment. The doctors wish for adequately trained social workers who will recognize emotional disturbances, refer them to those equipped to handle them, and be willing to work under direction without invading the field of psychotherapy.

For the seriously retarded child, adequately planned special classes under well-trained teachers will help meet the mental hygiene needs of the children who might without such work feel frustrated by school and unable to obtain security to adjust in socially acceptable ways; while sectional divisions of grades into groups more homogeneous as to mental ability in those localities where the number of pupils makes this feasible, will help prevent maladjustment in the less retarded groups. The effective handling of the retarded child in rural areas depends upon the teacher's early recognition of the retardation and ability to build an educational program to enable the child to reach a maximum level of efficiency.

The mental hygiene section strongly recommends the establishment of a psychopathic hospital for children for early treatment of mental disease.

More adequate facilities for the care and training of the white and colored feebleminded is advocated.

R. FINLEY GAYLE, *Chairman.*
DONNA BANTING BEMISS, *Secretary.*

Woman's Auxiliary to the Medical Society of Va.

President—MRS. FLETCHER J. WRIGHT, 49 S. Market St., Petersburg.

President-Elect—MRS. F. D. WILSON, 5352 Studley Ave., Norfolk.

Corresponding Secretary—MRS. MEADE EDMUNDS, Walnut Hill, Petersburg.

Recording Secretary—MRS. HAROLD W. POTTER, 70 33rd St., Newport News.

Treasurer—MRS. REUBEN F. SIMMS, 2502 Hawthorne Ave., Richmond.

Chairman, Press and Publicity—MRS. JAMES B. STONE, 15 Maxwell Road, Richmond.

"Doctor's Day."

All over Virginia during the week of April 12th-18th, DOCTOR'S DAY was observed in various towns, cities and counties by the members of the Auxiliary to the Medical Society of Virginia. Naturally, this body of women could better know the real worth to humanity of the doctor, and of the sacrifices, the generosity given, and problems solved, and the burdens carried by him, than could any other group or individual. Therefore, with no apologies for using this space to eulogize our doctors and the medical profession, but with just and sincere pride, we dedicate our pages of this issue to "THE DOCTOR." We preface our quotations with "Eulogy of the Doctor," by Robert Louis Stevenson:

"There are men and classes of men that stand above the common herd; the soldier, the sailor, and the shepherd not infrequently; rarelier still, the clergyman; the physician, almost as a rule. He is the flower (such as it is) of our civilization; and when that stage of man is done with, and only remembered to be marveled at in history, he will be thought to have shared as little as any in the defects of the period, and most notably exhibited the virtues of the race. Generosity he has, such as is possible to those who practice an art, never to those who drive a trade; discretion tested by a hundred secrets; tact, tried in a thousand embarrassments; and what are more important, Herculean cheerfulness and courage. So it is that he brings air and cheer into the sick room, and often enough, though not so often as he wishes, brings healing."

The Boston Transcript has given a "Lay Estimate of the Doctor" which we pass on to you:

"The doctor is altogether a special kind of a person. His illusions are few. His inside information is enormous, and, if now and then he wears a superior smile, forgive him. He probably just heard some remark which he knows to be fatuous or hypocritical. Again, his jokes are likely to be a bit technical, and his view of life materialistic. But if he has a brand of idealism, you can put your trust in it, for he has learned it in a hard school, and it is genuine. He has faced the worst, and can still believe in the best. And if he has religion, it will be worth coming at, for he has wrested it out of the actual battles of good and evil in our common life seen at close range.

"The lawyer we take into our confidence when we get good and ready; the clergyman we admit to parlor and dining room; but the doctor goes into the bedroom unannounced. He goes in at a time when the house, temporal and spiritual, has not been set to rights for his reception, but if what he sees surprises him, he seldom lets it be known. In the healing of bodies, he has opportunities for healing souls which could never come to a priest, and which many a priest could not heal. He is the lay father-confessor, regardless of creed. He knows more psychology in five minutes than a philosopher in a week, and he is, withal, the least emotional of men. To him belongs the final reward of service, which is the increased opportunity for service."

Like the Church, Medicine also has her martyrs; and perhaps no finer nor more generous sentiment has ever been expressed than that of a clergyman: "You will find today the largest body of disinterested, laborious, self-sacrificing men, looking for no reward, and getting no reward, except that which comes from faithful service to mankind, in the Medical Profession."

The *New York Tribune* has published "A Tribute to the Doctor," which we give in part:

"The alleged rapacity of doctors is one of the meanest of libels. It is contradicted by the common knowledge and every-day experience. The physician who thinks first of his fee is a rarity. The young woman of Trenton who was ready to sell herself in marriage for $1,000 to pay for an operation on her mother, need only have gone to the

nearest hospital, and not a cent would have been charged. Doctors are, no doubt, lower than the angels, but in whose daily labor is there more of unselfish service to fellow human beings?"

Poets, too, have appreciated, and paid tribute to our doctors. Pope wrote:

"A wise physician skill'd our wounds to heal
Is more than armies to the public weal."

Edgar A. Guest has given to the world some verses that strike a responsive cord in every heart in every walk of life:

"Who comes when we are in distress?
Who hears our call and answers: 'Yes'?
The Doctor.
Who four and twenty hours a day
Is never sure of rest or play
And cannot put his work away?
The Doctor.

Who asks no shelter from the rain?
Who braves all storms to comfort pain?
The Doctor.
Who in the banquet hall will rise
And all its pleasure sacrifice
Because somewhere a baby cries?
The Doctor.

Who knows no bedtime fixed and sure?
Who all our worries must endure?
The Doctor.
Who must his every nerve command
In times of greatest peril, and
Work with a calm and steady hand?
The Doctor.

Who most deserves man's gratitude?
Who is it prayers should oft include?
The Doctor.
Who all through life is standing by,
From birth, and that first happy cry
Until the last, when death is nigh?
The Doctor.

Dr. Cary Grayson, of the United States Navy, in an address before the Southern Medical Association in 1924, said: "Many of us, my friends, may never reach the 'portals of fame's proud temple shining afar.' We may not wear the epaulets of exalted rank, nor stand in the Nation's Capitol crowned with civil honors. We may not, like St. Paul, open the Book of Truth to a heathen world, nor tread the martyr's holy path to glory. But in the humble sphere of the good physician, we may win a grand and glorious victory. It may be ours to do the little things on earth, to visit the sick, t comfort the lowly, to cheer the weak, to raise th fallen, to minister even a cup of cold water in Hi name; and though the world may build for us n monument of marble and history's page reflect n brilliant deeds of valor, yet, surely our reward shall be a crown of rejoicing pure and fadeless from the pierced hands of the Prince of Peace."

In this printed eulogy of the doctor, we have le others sing his praises, yet the *wives* of our doctors could tell many more splendid things of them than can any poet, or editor, or orator. Not only on "DOCTOR'S DAY," but always in our hearts is built that "monument" to medical science, and to its practitioners.

Doctors of Virginia, your Auxiliary to your State Society salutes you!

Truth About Medicine

In addition to the articles previously enumerated, the following have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association:

Eli Lilly and Company
- Tablets Amytal, ¾ grain
- Ophthalmic Ointment Metycaine 4 per cent

National Drug Company
- Antipneumococcic Serum—Felton—Type I (Refined and Concentrated)
- Antipneumococcic Serum—Felton—Types I and II (Refined and Concentrated)

Parke, Davis & Co.
- Kapseals of Ortal Sodium with Phenacetin

Accepted Devices for Physical Therapy

Inductotherm (One Tube).—In 1935 the Council on Physical Therapy accepted the General Electric Inductotherm (two tube). The General Electric X-Ray Corporation has designed a new unit in which only one tube is employed; but it is much larger and more efficient, thus giving approximately the same power with the one tube that was formerly developed by two smaller tubes. In order to obtain this power, however, it is necessary to be more careful about the placement of the coil applicator. The physical and electrical tests showed that the electrical equipment was reliable and met the requirements of the Council. The mattress on which the patient lies should be non-metallic. General Electric X-Ray Corporation, Chicago.

Propaganda for Reform

The Tryparsamide Patent and Trade Mark.—The Council on Pharmacy and Chemistry reports that tryparsamide is an arsenical preparation originally pro-

posed for treatment of trypanosomiasis but now used as well in certain cases of syphilis of the central nervous system. The product is at present manufactured and marketed by Merck & Co., Inc., under U. S. patents and trade mark registration by license from the Rockefeller Institute for Medical Research, which owns both the patents and the trade mark. It was accepted by the Council for inclusion in New and Nonofficial Remedies in 1925. The justification for patenting a worthwhile medical preparation lies in the opportunity this procedure affords of controlling the quality and purity of the preparation involved for the purpose of protecting the public from the marketing of specious or impure products. This is particularly true of a drug such as tryparsamide, which requires unusual care in its preparation to insure that degree of purity which is essential for proper use. The patent on tryparasmide expired September 24, 1935. On October 9, 1935, the Secretary inquired of the Rockefeller Institute whether it intended to dedicate the name tryparsamide to the public as a nonproprietary designation on the expiration of the patents. The institute informed the Secretary that it not only planned to dedicate the name to the public as a nonproprietary designation but had already taken steps to that end both in the United States and in numerous foreign countries. The Council, therefore, adopted tryparsamide as a nonproprietary name for the product which has been marketed under that name as a proprietary designation. (*J. A. M. A.*, March 7, 1936, p. 781.)

Book Announcements

The Pharmacopoeia of the United States of America. Eleventh Decennial Revision. (U. S. P. XI.). By Authority of the United States Pharmacopoeial Convention Held at Washington, D. C., May 13 and 14, 1930. Prepared by the Committee of Revision and Published by the Board of Trustees. Official from June 1, 1936. Agent, Mack Printing Company. Easton, Pa. Octavo of 1xxx-676 pages. Cloth. Price, $5.00.

Several new features have been added to the pharmacopoeia, among which may be noted chapters on sterilization and hydrogen ion concentration. Percentage solutions are no longer made by weight. Those of liquids in liquids are made by volume, while those of solids in liquids are made weight-to-volume. The pharmacopoeia is for the first time standardizing the medicine dropper. The official dropper conforms to international specifications and delivers 20 drops of distilled water, weighing 1 Gm. This corresponds to approximately 75 drops of water and 150 drops of alcoholic liquids per fluid drachm. Unstandardized droppers now in use have been found to deliver from 100 to 300 drops of tincture of digitalis per fluid drachm.

In several cases titles of official preparations have been changed in order to more nearly describe the preparations concerned. One hundred and nineteen products which were official in U. S. P. X have not been admitted to U. S. P. XI. Fifty-eight new products have been made official. In accordance with the wish of the Revision Committee, the seventeen physicians of the Committee on Scope were enabled to control additions and deletions. This committee made its selection of products to be official in U. S. P. XI, primarily on the basis of therapeutic usefulness. Proposed additions and deletions were published well in advance in the medical and pharmaceutical press and criticisms were carefully considered before final action was taken. Those products which are official have been admitted because they are considered necessary either in the treatment of disease or in the manufacture of other products which are official.

Among the deletions we find drastic cathartics such as colocynth, croton oil, elaterin, gamboge, jalap and compound cathartic pills. Other products have been deleted for reasons which follow: gambir and krameria, because they have little value as astringents; buchu and uva ursi, because they are little used; Basham's mixture because of its small iron content; water, because many sources of supply are chemically treated and no longer meet U. S. P. specifications. In the manufacture of preparations of U. S. P. XI, distilled water alone may be used. Many fluidextracts have been deleted because they are too concentrated for administration and hence are little used.

Among the additions we find: bismuth and potassium tartrate, admitted after much study of bismuth remedies used for syphilis; chiniofon for amebiasis; antiseptic iodine solution, highly bactericidal yet slightly irritating to the tissues; activated charcoal, wood charcoal specially treated and tested to insure its efficiency as a gas adsorbent. Other well-known products admitted are: acriflavine and its hydrochloride; calcium creosotate; calcium gluconate; ethylene; ethyl hydrocupreine hydrochloride; ephedrine and salts; erythrityl tetranitrate (erythrol); mercuric succinimide; merbaphen; neocinchophen; sodium perborate; theophylline with ethylene diamine (aminophylline), and tryparsamide.

Patented products such as insulin cannot be admitted because of legal complications which entitle the patent owner to change standards at will, regard-

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less of the drug's pharmacopoeial status. The patent on tryparsamide is about to expire. It is being admitted under its trade marked name by permission of its owner, the Rockefeller Institute for Medical Research.

The following biologicals are now official: the vaccines of rabies, smallpox, typhoid, and the mixture of typhoid with paratyphoid A and B; the antitoxins of diphtheria, scarlet fever and tetanus; the antimeningococcic and type one antipneumococcic serums; the toxins, diphtheria toxoid, diphtheria toxin for the Schick test, scarlet fever streptococcus toxin for the Dick test, and old tuberculin.

The Pharmacopoeia has established a U. S. P. Vitamin Advisory Board, a U. S. P. Anti-Anemia Preparations Advisory Board and a U. S. P. Advisory Committee on Cardiac Drugs. The members of these boards are of the highest rank professionally. The Vitamin Board works with the corresponding international group of the Health Organization of the League of Nations. Extract of liver, solution of liver and dried stomach in order to meet the specifications of U. S. P. XI must be approved by the U. S. P. Anti-Anemia Preparations Advisory Board.

Remedies of established merit no longer have to wait ten years to gain admission to the pharmacopoeia. The Board of Trustees has authorized the publication of interim revisions, whereby new products may be admitted or standards changed whenever it is found advisable.

W. G. CROCKETT, M. S., PHAR. D.*

*Professor of Pharmacy, School of Pharmacy, The Medical College of Virginia. Member of the Revision Committee, U. S. P. XI.

Diseases of Women. By HARRY STURGEON CROSSEN, M. D., F. A. C. S., Professor Emeritus of Clinical Gynecology, Washington University School of Medicine; Gynecologist to the Barnes Hospital, St. Louis Maternity Hospital, and St. Luke's Hospital; etc. And ROBERT JAMES CROSSEN, M. D., Instructor in Clinical Gynecology and Obstetrics, Washington University School of Medicine; Assistant Gynecologist and Obstetrician to the Barnes Hospital and The St. Louis Maternity Hospital; etc. Eighth Edition, Entirely Revised and Reset. St. Louis. The C. V. Mosby Company. 1935. Octavo of xiv-999 pages. With One Thousand Fifty-Eight Engravings, Including One Color Plate. Cloth. Price, $10.00.

The 8th edition of Crossen's "Diseases of Women" brings the subject up to date. In fact in many instances reference is made to discussions that have taken place in special societies before the original articles have appeared in print. This is especially noteworthy in case of sex cell tumors and in the treatment of gonorrhea in infants. The discussion of endocrine relations is as clear and as authoritative as this difficult and rapidly changing subject can be made. Menstrual headache and the role played by metabolic craniopathy is another instance of the care the authors have taken to bring the book up to date.

The work is beautifully and profusely illustrated, not only with cuts from the authors' own rich experiences but from a wide range of other authorities. Reference is made to the source from which the illustrations are taken, but in case of journals such as *Arch. Surg., Bull. Johns Hopkins Hospital,* etc., the volume number is unfortunately omitted.

The subjects are taken up in the general order in which gynecology is presented to the medical student. This arrangement is convenient to the medical student, but when used as a reference work, it necessitates looking up the particular subject in several different places which is as aggravating as reading a newspaper.

The work is so excellent in many respects that it is hard for one to be hypocritical. One must take exception, however, to the treatment recommended for myomata complicated with pregnancy. The authors say of that numerous class where the myoma becomes troublesome after the patient has been pregnant three or four months, two courses are open, either to remove the tumor and the uterus or empty the uterus and probably remove the tumor and uterus later. Of the two courses, immediate hysterectomy is the safest plan. They make no mention of myomectomy under such circumstances. Frequently this can be done and the pregnancy go to term and a successful delivery.

One more little criticism and I am through. Dr. Isidor C. Rubin is referred to as Dr. T. C. Rubin, but Dr. Rubin is so well known that such a typographical error is not misleading.

M. PIERCE RUCKER, M. D.

Hospital Service in the United States. 1936. Fifteenth Presentation of Hospital Statistics by the Council on Medical Education and Hospitals of the American Medical Association. The 1935 Census of Hospitals. Hospitals Registered by the American Medical Association. Reprinted from the Hospital Number of the Journal of the American Medical Association. March 7, 1936. Pamphlet. Price, 50 cents.

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Editorial

Roads, Farmers and Rural Practice.

A recent editorial published in at least two newspapers have commented upon the rural practice of medicine as affected by improved roads and the advent of the automobile. Dr. P. St. L. Moncure, President of the Medical Society of Virginia, taking issue with the points of view expressed in these publications, writes:

"In the *Loudoun Times-Mirror* and *The Southern Planter* of April, under the caption: 'Cheap Temporary Roads,' the following paragraphs refer to the country doctor: First, 'The country doctor, who once lived and practiced in the rural community, has long since fallen in with the trend of the times and moved to town.' And second, 'For medical care the farmer must either take the patient to town for an examination, or pay the almost prohibitive fee of a physician's call in the country.' These statements to us seem unwarranted, and unjust.

"The automobile brought the hard surfaced road. The farmer, as well as the country physician, bought his automobile; but the hard surfaced road and automobile ran the poor country physician into town, or out of his business or profession. And how? The farmer who had depended on his neighbor, his old family doctor, instead of sending for him as of yore, picked up the patient, especially if it was only an office case, and ran him into town to see some new doctor. It was not long before the family physician found that he would have to go to town, or else go out of business; for the farmer, and all of any trade or occupation who could afford to go to town, had left him. He was left with only the desperately poor—who could not afford a car, or afford to go to town—and these were not able to pay him anything.

"In answer to the second paragraph: Reports and statistics show that neither country nor town doctors are paid any more proportionately for amount of work done than they were in the old days of dirt roads, and slow travel by horse. And as for taking the patient to town for an examination, the farmer started it, not the doctor.

"We deplore the lack of facilities and equipment of the country doctor; and organized medicine is making every effort to acquaint him with the most approved and up-to-date appliances, and methods of diagnosis and treatment. Demonstrators and lecturers for several years have visited every section of the State bringing these new and improved methods to the country physicians—who haven't the time, nor money, to visit the large clinics and centres of teaching as often as they would like to do.

"If the farmers, and others in the country, would stick to their old tried and true family doctor, instead of running to town after new ones when the roads are good, they would not have as much cause for complaint when a hard winter comes, such as

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the one just experienced—where the elements of rain and snow, and zero weather—over which man has no control—tear up and damage all roads."

The New Insulin.

There has recently been made available through an English translation Niels B. Krarup's monograph on *Clinical Investigations into the Action of Protamine Insulinate.* In a recent issue of the *Journal of the American Medical Association* there appeared articles upon the same subject by Hagedorn and his collaborators, and by Root and his associates. Although this new insulin is now available only for experimental purposes it appears extremely likely that in the near future it will be placed upon the market for general distribution. While questions such as the stability of the compound and the standardization of the technique of its administration are being worked out it might be well to call to mind some of the interesting facts brought to light by the pioneer work of Krarup. This Norwegian investigator has prepared a compound of insulin and *scombrine* or *salmine* protamine with an isoelectric point similar to that of the blood. He summarizes the advantages which this compound appears to have over ordinary insulin by saying that: "On the basis of present observations, it is considered probable that the effect of protamine insulinate as a rule lasts for about twelve hours, or approximately twice as long as that of ordinary insulin. The utilization of protamine insulinate is greater than that of ordinary insulin. All the patients treated with protamine insulinate have been successfully relieved of symptoms due to hyperglycemia and acidosis without the administration of more than two injections a day. Protamine insulinate has proved to be less likely to produce hypoglycemic shocks than is ordinary insulin.

"The present investigation shows that the effect of protamine insulinate is more uniform and of longer duration than that of ordinary insulin and that this action can be advantageously used to lessen the fluctuation of blood-sugar and the consequent indisposition, the glycosuria, and the tendency to acidosis, without necessitating an increase in the number of injections."

Narna Darrell.

There have always been doctors who have turned to the world of letters to find some agreeable and effective medium of self-expression—Thomas Brown, Oliver Goldsmith, Tobias Smollett, Oliver Wendell Holmes, Weir Mitchell. The list might easily be extended. It is only natural that men of education with such intimate glimpses into human nature as are granted physicians should seek to capture on paper personalities, experiences, philosophies.

Our own Dr. Beverley R. Tucker has now turned novelist. His *Narna Darrell* is fresh from the press. Our interest in novel and writer is heightened by our knowledge that Dr. Tucker was once a student of Weir Mitchell's, became imbued with his spirit and wrote a sketch of his life. Weir Mitchell was a historical novelist of no mean worth. The tone of his books is said "to be a lesson and a tonic for an age that is sick and weak with literary perverts."

Narna Darrell defies time and space. In the course of some 327 pages it takes us from 55 B. C. to 1968 A. D. It begins in Southern England and ends in Tidewater Virginia. It covers a good deal of history, it smacks of politics, it touches on religion, it has a flavor of medicine, it deals with society. It is a narrative of perennial, flaxen-haired Nordic womanhood with courage, compassion, and composure, impelled by a genius for freedom, faithfulness and fair play, and with a facility for finding matrimonial happiness in men of similar traits and inheritance. It is moreover a travelogue of the manners and morals of contemporary Virginia written by one who on many counts is qualified to express himself in these domains.

It is said that when Hogarth's prints were first displayed in the London shops great crowds of people gathered about them jostling one another in animated discussion. An onlooker observed that their interest centered not in the genius of Hogarth nor in his masterly portrayal of the follies and foibles of contemporary London, but in the desire to discover just what celebrity of the day each figure represented. Since Dr. Tucker's narrative is laid at our very doorstep undoubtedly some persons will be tempted to try to fit their friends and acquaintances into his characters.

Books are apt to mirror their authors. Few men write without revealing themselves. In *Narna Darrell* there is a strong flavor of sentiment, a fondness for philosophizing, and a frank admiration for the Anglo-Saxon race. There is a desire for freedom of action and of thought, a hatred of cant and hypocrisy, a sense of social justice. There is praise

for the enduring value of tradition, tempered by a willingness to go along with progress. There is undisguised affection for the bulwarks of our national and political stability, the Bible, Magna Charta and the Virginia Bill of Rights. If these things be a revelation of the true Dr. Tucker we may well be proud to call him one of us.

Graduate Study for Colored Nurses.

Virginia is to be congratulated upon the selection of the Saint Philip's Hospital in Richmond for a course in Public Health Nursing open to Negro graduate nurses and leading to certificate in Public Health Nursing. The work will be of college grade and will carry the usual credits. It is sponsored by the United States Public Health Service. In fact it is one of the activities of this department made possible by the Social Security Act. The course also has the approval of the National Organization of Public Health Nurses.

This is understood to be the only course of this character being now offered for Negro graduate nurses in the United States. Most of the students have held regular positions in the Department of Public Health and will return to their respective states after the course is completed to resume their work. Twenty-seven students are said to have registered already, representing twelve states and the District of Columbia. We wish Miss Lillian M. Bischoff, director of this course, every success.

The Next Move.

The great majority of Virginia doctors are graduates of the Medical Department of the University of Virginia or of the Medical College of Virginia, and are therefore vitally interested in medical education as carried on in these institutions. They have followed with enthusiasm and appreciation the rapid progress these schools are obviously making. Some few years ago at the University of Virginia a hospital was completed which for the present at least places this institution upon firm ground so far as physical equipment is concerned. The teaching hospital is generally recognized as the center and core of all medical instruction and every medical school is inevitably rated by the quality of the hospital it supports. In emphasizing their hospital, those in authority at Charlottesville have not only done well by themselves but have set their sister institution a high standard which it is hoped she will not be slow to emulate.

Department of Clinical and Medical Education of the Medical Society of Virginia

Obstetric and Pediatric Clinics to be Held in Virginia.

The Department of Clinical and Medical Education is glad to announce to the Society that plans are being completed to bring to the State of Virginia for an indefinite period two full-time clinicians, one an obstetrician, and the other a pediatrician, who will give lectures and conduct clinics in the several communities throughout the State. While the details of the plan under which the clinicians will be available to local medical societies have not been completed, the Department is of the opinion that the general plan under which Dr. Maxwell E. Lapham conducted his lectures and demonstrations will be followed. It is hoped, however, that arrangements can be made so that more of the specialists' time will be available for informal conferences and bedside consultations in the company with physicians when the latter invite these.

Members of the Society who have suggestions to offer with reference to the continuation of this Postgraduate Extension Medical Education program are invited to send these to the Chairman of the Department, Dr. F. H. Smith, Abingdon, Va., or to the Executive Secretary of the Department. Local societies that would like to cooperate in conducting lecture-clinics in the subjects of obstetrics or pediatrics are requested to so notify the Executive Secretary as promptly as possible.

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Graduate Clinics to be Held at University of Virginia.

The Department of Medicine of the University of Virginia announces a graduate clinic to be held at the University of Virginia Hospital on May 8th. The clinics will be held by the various Departments of the University Medical School. There will be no formal lectures but an opportunity to ask questions and to discuss topics of interest will be extended.

A later announcement will give the details of the program.

Dr. L. T. Royster, the Chairman of the University's Graduate Clinic Committee, cordially invites all physicians of the State to attend this clinic.

GEORGE B. ZEHMER,
Executive Secretary.

Medical College of Virginia Clinics.

The annual spring postgraduate clinics and Stuart McGuire lectures, April 6th and 7th, were unusually well attended by physicians from Virginia, West Virginia, and North Carolina. Dr. Edward C. Rosenow, head of the department of experimental bacteriology, Mayo Clinic, was the Stuart McGuire lecturer, giving one lecture on the night of April 6th and a second on the night of April 7th.

Physicians registering for the clinics were as follows:

Dr. Frank L. Apperly, Richmond.
Dr. Harry Bear, D. D. S., Richmond.
Dr. Karl S. Blackwell, Richmond.
Dr. Nathan Bloom, Richmond.
Dr. A. C. Broders, Richmond.
Dr. William Bickers, Richmond.
Dr. C. C. Coleman, Richmond.
Dr. W. G. Crutchfield, Richmond.
Dr. A. I. Dodson, Richmond.
Dr. D. M. Faulkner, Richmond.
Dr. Thomas F. Gill, Richmond.
Dr. Emory Hill, Richmond.
Dr. G. A. C. Jennings, D. D. S., Richmond.
Dr. R. F. McCrackan, Richmond.
Dr. C. L. Outland, Richmond.
Dr. Irwin Rifkin, Richmond.
Dr. J. A. Shield, Richmond.
Dr. J. B. Stone, Richmond.
Dr. L. T. Stoneburner, Jr., Richmond.
Dr. L. E. Sutton, Jr., Richmond.
Dr. F. J. Wampler, Richmond.
Dr. H. H. Ware, Jr., Richmond.
Dr. Pauline Williams, Richmond.
Dr. Carleton Moorman, Altavista.
Dr. John H. Bonner, Beaumont.
Dr. C. F. Manges, Blacksburg.
Dr. John C. White, Blackstone.
Dr. G. A. Fultz, Butterworth.
Dr. R. M. DeHart, Christiansburg.
Dr. J. A. Wright, Doswell.
Dr. H. W. Pritchett, Danville.
Dr. W. E. Jennings, Danville.
Dr. E. B. Roberts, Danville.
Dr. J. J. Neal, Danville.
Dr. L. D. Morgan, Gladys.
Dr. James D. Clements, Gloucester.
Dr. Walter A. Porter, Hillsville.
Dr. S. E. Gunn, Hopewell.
Dr. J. M. Habel, Jetersville.
Dr. T. B. Ely, Jonesville.
Dr. E. T. Younger, Lynchburg.
Dr. Clarence P. Jones, Newport News.
Dr. J. C. Cutler, Newport News.
Dr. J. C. Butts, Newport News.
Dr. M. H. Bland, Norfolk.
Dr. F. J. Wright, Petersburg.
Dr. H. Davis, Roanoke.
Dr. J. R. Parker, Providence Forge.
Dr. G. B. Barrow, Staunton.
Dr. G. E. Stone, Staunton.
Dr. Marshall J. Payne, Staunton.
Dr. P. D. Johnston, Tazewell.
Dr. William R. Pretlow, The Plains.
Dr. J. F. Thaxton, Tye River.
Dr. H. T. Hawkins, Waynesboro.
Dr. Charles O. Dearmont, White Post.
Dr. A. R. Grant, Utica, N. Y.
Dr. C. F. Ridge, Thurmond, W. Va.
Dr. L. I. Hoke, Layland, W. Va.
Dr. W. E. Bundy, Minden, W. Va.
Dr. G. Sprite Barbee, Zebulon, N. C.
Dr. H. M. Brown, Greenville, N. C.
Dr. W. M. B. Brown, Greenville, N. C.
Dr. G. G. Dixon, Ayden, N. C.
Dr. W. F. Evans, Williamson, N. C.
Dr. W. A. Hoggard, Hertford, N. C.
Dr. L. M. Massey, Zebulon, N. C.
Dr. R. C. Miller, Gastonia, N. C.
Dr. J. E. Raby, Tarboro, N. C.
Dr. C. B. Robertson, Jackson, N. C.
Dr. D. M. Royal, Salemburg, N. C.
Dr. H. Royster, Tarboro, N. C.
Dr. T. W. Long, Roanoke Rapids, N. C.
Dr. R. L. Tomlinson, D. D. S., Wilson, N. C.
Dr. N. W. Ward, Greenville, N. C.
Dr. T. M. Watson, Greenville, N. C.
Dr. J. W. Wilkins, Mount Olive, N. C.
Dr. J. L. Winstead, Greenville, N. C.

Proceedings of Societies

The Southwestern Virginia Medical Society

Held its Spring meeting at Galax on April 2nd and 3rd, under the presidency of Dr. W. R. Whitman of Roanoke. Dr. H. W. Bachman, Bristol, Va., is secretary-treasurer. The banquet was held at the Thursday evening session, at which time Dr. Mont R. Reid, formerly of Botetourt County, Va., but now of Cincinnati where he is professor of surgery at the University of Cincinnati, was the guest speaker. His subject was "Some Considerations of the Problem of Wound Healing." At the Friday morning session, papers were presented by Drs. John E. Gardner, John W. Preston and L. D. Keyser, of Roanoke; Dr. J. Stuart Staley, Marion; Dr. J. Coleman Motley, Abingdon; Dr. J. B. Nicholls, Catawba Sanatorium; Dr. V. M. Cox, Bristol, and C. D. Moore, Wytheville.

Dr. O. B. Boyce, Rural Retreat; Dr. C. T. Burton, Roanoke; Dr. Geo. W. Leavell, Bristol; Dr. L. B. Lowe, Pearisburg, and Dr. J. B. Porterfield, Christiansburg, were admitted to membership.

The next meeting of the Society will be held in Wytheville in September.

The Nelson County Medical Society,

At its annual meeting, re-elected Dr. B. F. Randolph, Arrington, as president, and Dr. J. F. Thaxton, Tye River, as secretary-treasurer. Delegate and alternate to the Staunton meeting of the State Society were elected at this time also.

Northampton County Medical Sociey.

At the meeting of this Society on April 1st, Dr. P. St. L. Moncure, President of the Medical Society of Virginia, spoke on the problems of economics confronting doctors of the United States and gave advice as to how to attack these problems so as to avoid the development of some form of socialistic medicine. We were impressed with the enormous burden he carries as State President and we congratulated ourselves in having him in that office.

Dr. Walter B. Martin, also of Norfolk, presented a comprehensive outline of the Treatment and Prognosis of Pneumonia.

Dr. E. L. McQuade of the State Department of Health was a visitor at this time.

Dr. J. Mortimer Lynch, Cape Charles, is President of this Society.

W. CAREY HENDERSON,
Secretary.

The Wise County Medical Society

At its meeting on March 11th, elected the following officers: President Dr. F. E. Handy, Appalachia; vice-president, Dr. S. P. Gardner, Derby; and secretary-treasurer, Dr. G. T. Foust (re-elected), Norton.

Rockingham County Medical Society.

Officers of this Society, elected at their annual meeting are: President, Dr. A. C. Byers, Harrisonburg; vice-president, Dr. C. P. Harshbarger, Harrisonburg; and secretary-treasurer, Dr. B. W. Nash, Timberville. Meetings are held monthly, except for the summer months.

Roanoke Academy of Medicine.

At the regular meeting of the Academy on April 6th, Dr. Perry G. Goldsmith, Professor of Otolaryngology of the University of Toronto spoke on "Common Colds," and Dr. Wells P. Eagleton, Chief of the Department of Cranial Surgery of the Newark Eye and Ear Infirmary, presented a paper on "Diseases of the Bones of the Skull in Relation to Meningitis."

On April 20th, the Academy and physicians of Southwest Virginia were guests at a dinner meeting at Catawba Sanatorium. Papers were presented by Drs. A. T. Coleman, L. W. Garst, D. L. Anderson, L. R. Broome, and J. B. Nicholls, all of Catawba Sanatorium, and Dr. E. C. Drash, University.

There was a Laboratory Exhibit showing a large amount of original work. Tubercle bacilli were shown growing on various foods, such as peas, beans and sweet potatoes. Five hundred cultures were shown and were of special interest in that many had been taken directly from the sputum of patients.

Lynchburg Academy of Medicine.

At the regular meeting of the Academy on March 2nd, Dr. I. C. Riggin, State Commissioner of Health, spoke on the Health Department and its work with the medical profession in Virginia.

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On April 6th, Dr. Wyndham B. Blanton, Richmond, presented an address on the "Genealogy of a Pill" in which the C. C. pill of hallowed reputation lost some of its halo.

Dr. Rosser Noland Hillsman, Jr., Amherst, Va., was elected to membership in the Academy.

The meeting was followed by a buffet supper and was well attended.

Dr. Henry Rawlings is president and Dr. John Hundley, Jr., secretary.

Nansemond County Medical Society.

Dr. William F. Wild, secretary of this Society, announces that interesting programs have been presented by the Nansemond Society in the past year. Visitors presenting papers at their meetings have been: Dr. J. Shelton Horsley, Dr. W. B. Porter, Dr. Harry Walker, Dr. A. C. Broders, D. H. P. Mauck, and Dr. William Bickers, all of Richmond. Dr. Fred J. Wampler, also of Richmond, showed the Canti Cancer film at the meeting at which Dr. Broders gave a lecture on Cancer. Medical and surgical motion pictures were also shown by a representative of the Mead Johnson Company, at one meeting.

News Notes

American Medical Association.

Everything is in readiness for the annual meeting of this Association in Kansas City, May 11th-15th. The Association is fortunate in being among the first to enjoy the new $6,000,000 Municipal Auditorium which is located in the heart of the city. The main arena has a seating capacity of 13,000 to 15,000 and it has complete air conditioning and mechanical ventilation.

The general clinical meetings include on their program two representatives from abroad—Lord Horder, London, and Afranio do Amaral, Sao Paulo, Brazil. The section programs also include visitors from abroad.

Virginia will be represented in the House of Delegates by Drs. Wright Clarkson, J. C. Flippin, and Walter B. Martin, our regularly elected delegates.

The American Medical Golfing Association will hold its twenty-second annual tournament on May 11th. Thirty-six holes of golf will be played in competition for the seventy trophies and prizes in the nine events. All male Fellows of the American Medical Association are eligible and cordially invited to become members of the A. M. G. A. Your club handicap, signed by the secretary, is required and no handicap over thirty is allowed except in the Kickers' (Blind Bogey). For further information, write the executive secretary, Bill Burns, 2020 Olds Tower, Lansing, Mich.

Appointment of Health Officers.

Dr. M. I. Shanholtz was appointed Director of the Bristol-Washington County Health District, with headquarters at Bristol, Va., effective March 21, 1936. He is a graduate of the University of Virginia, class of '34.

Dr. J. F. Fulton, Staunton, and Dr. F. N. Thompson, Newport News, are now on fellowships at the University of North Carolina, Division of Public Health, preparatory to entering public health work upon completion of the course.

Dr. Charles L. Savage was appointed Director of the Buchanan-Russell-Tazewell Health District, with headquarters at Richlands, Va., effective April 16, 1936. Dr. Savage served as tuberculosis clinician on the Tuberculosis Out-Patient Service of the State Health Department from November 1, 1933, through April 15, 1936. He is a graduate of the University of Virginia.

Dr. John H. Bonner was appointed Director of the Sussex County Health District, with headquarters at Stony Creek, Va., effective April 15, 1936. Dr. Bonner is a graduate of the Medical College of Virginia and has recently been practicing at Powhatan, Va.

Married.

Dr. Delmar Franklin Weaver, Jr., Standardsville, Va., and Miss Beulah Bohrer Thrift, Washington, April 2nd. Dr. Weaver is a graduate of the University of Virginia, class of '32, and after a year at the Virginia Mason Clinic in Seattle, Wash., took

up practice in his native county. Dr. and Mrs. Weaver have now gone to Rochester, Minn., where he has received a fellowship at the Mayo Clinic and will spend three years specializing in ear, nose and throat diseases.

Dr. Elam Cooksie Toone, formerly of Richmond, Va., and Miss Margaret Adelaide Salter, Anniston, Ala., April 11th. Dr. Toone graduated from the Medical College of Virginia in 1934 and interned at Hillman Hospital, Birmingham, Ala. They will now be located in Petersburg, Va.

Dr. Nicholas Floyd Adams, Jr., class of '26, University of Virginia, Department of Medicine, now of Baltimore, Md., and Miss Margaret Bardelle Roberts, also of Baltimore, April 24th.

Dr. Emmett Carlysle Matthews, Waynesboro, and Miss Mary Hodnett, Chatham, February 7th. Dr. Matthews graduated from the Medical College of Virginia in 1934 and interned at Memorial Hospital, Richmond.

The Virginia Society of Oto-Laryngology and Ophthalmology

Is holding its annual meeting in Richmond at the Academy of Medicine Building on May 2nd, the session starting at 9:30 A. M. Dr. Emory Hill, of this city, is president, and Dr. G. G. Hankins, Newport News, secretary.

Dr. Frank S. Johns,

Richmond, Va., by invitation addressed the Norfolk County Medical Society at its meeting on April 13th.

A Vacation Postgraduate Cruise to Bermuda

Is being sponsored by the Seaboard Medical Association of Virginia and North Carolina in June, in conjunction with the Virginia Pharmaceutical Association. Dates have been selected as June 14th-19th, inclusive, and the rates will average from $63 to $93 per person for all expenses, according to accommodations selected. The secretary of the Seaboard Association, Dr. Clarence Porter Jones, of Newport News, advises that there will be four meetings on board the ship with at least four outstanding speakers.

Information in regard to this cruise may be obtained from Mr. H. H. Allen, Thomas Cook and Son, 587 Fifth Avenue, New York City.

Dr. William Dandridge Haden,

Charlottesville, Va., was in April appointed by Governor Peery as a member of the board of the Miller Manual School in Albemarle County.

Medical College of Virginia News.

The sixth annual Saint Philip Postgraduate Clinic for Negro physicians will be held June 15th-27th. The clinic as in the past will be subsidized by the General Education Board of New York.

A postgraduate year in public health nursing has been added in the Saint Philip Hospital school of nursing for Negro graduate nurses. The course opened on March 16th with twenty-seven students from twelve states and the District of Columbia. This work is approved by the United States Public Health Service for the reception of students from eighteen cooperating states under the Social Security Act.

Mr. John E. Davis, instructor in physiology, has been awarded the degree of Doctor of Philosophy by the University of Chicago.

Dr. Carl L. A. Schmidt, professor of biochemistry, University of California Medical School, and Dr. W. O. Fenn, professor of physiology, University of Rochester Medical School, were recent visitors to the college, lecturing to the students while here.

The annual reunion of the ex-internes of the Hospital Division of the college was held March 20th. An organization was completed, officers elected, and plans made for an annual meeting. About one hundred ex-internes were present for the meeting.

Dr. Edward J. Van Liere, dean of the school of medicine, West Virginia University, was a recent college visitor.

Dr. Harvey Haag, professor of pharmacology, presented a paper on Studies of the Persistence of Action of Various Digitalis Substances at the Federation of American Biological Societies at Washington, March 25th through March 28th. Dr. Ernst Fischer, associate in physiology, presented a paper on The Action of a Single Vagal Volley and the Dependence of its Chronotopic Effect on the Rythmic Mechanism of the Pacemaker.

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Others of the college staff who attended the Washington convention are: Dr. J. C. Forbes, Dr. Frank L. Apperly, Dr. John E. Davis, Dr. Rolland J. Main.

News from University of Virginia, Department of Medicine.

At the meeting of the University of Virginia Medical Society on March 23rd, Dr. M. Ehrenstein, of the Department of Physiology, read a paper on Gonadotropic Factors and Sex Hormones.

Dr. William M. Moir, of the Department of Pharmacology, read a paper on The Influence of Age and Sex on the Repeated Administration of Sodium Pentobarbital to Albino Rats, during the meetings of the Federation of American Societies for Experimental Biology in Washington on March 27th.

At the meeting of the University of Virginia Medical Society on March 30th, Drs. W. H. Parker and E. P. Lehman spoke on the subject of Studies on Head Injuries.

The following were recent visitors at the Medical School: Dr. Frank P. Knowlton, Professor of Physiology, Syracuse University; Dr. Elliott C. Cutler, Mosely Professor of Surgery, Harvard Medical School; Dr. Dayton J. Edwards, Associate Professor of Physiology, Cornell University Medical College; Dr. William C. Rose, Professor of Physiological Chemistry, University of Illinois.

Dr. Alfred Chanutin and Dr. Stephan Ludewig presented a joint paper on the Influence of Liver Damage on the Blood Lipids before the Section on Biochemistry of the Federation of American Societies for Experimental Biology on March 27th.

At the meetings of the American Association of Anatomists at Duke University on April 9th to 11th, Dr. C. C. Speidel read a paper on the Formation and Metamorphosis of the "retraction cap of injury" of Striated Muscle Fibers in Living Frog Tadpoles; Dr. J. E. Kindred read a paper on an Interpretation of the Secondary Lymphoid Nodule in Lymph Nodes of the Albino Rat; Dr. H. E. Jordan was chairman of a Round Table Conference on Lymphocytes, Macrophages and Fibroblasts.

Dr. Maximillian Ehrenstein, of the Department of Physiology, formerly a member of the faculty of the University of Berlin, was awarded one of the Vant Hoff Prizes of the Royal Academy of Science of Amsterdam in recognition of his work on the alkaloids of tobacco.

On April 2nd, Dr. Lawrence T. Royster spoke before the Institute of Medicine at the Community Hospital in Farmville, Va.

On April 8th, Dr. John Staige Davis, Associate Professor of Surgery at the Johns Hopkins University, spoke before the Albemarle Medical Society at their meeting at the Medical School on the subject of Wounds and Scars.

At the annual initiation meeting of Alpha Omega Alpha on April 13th, Dr. T. Duckett Jones, Director of Research at the Good Samaritan Hospital, Boston, Mass., gave the William W. Root Memorial Lecture, speaking on the subject of The Etiology of Rheumatic Fever.

News from New York Polyclinic Medical School and Hospital.

At a meeting of the Clinical Society of the New York Polyclinic Medical School and Hospital on February 3rd, the following program was presented:

1. "Some Improved Methods in Plastic Reparative Surgery—Illustrated by Cinematograph Film in Natural Color" by J. Eastman Sheehan, M. D.

2. "Diagnosis and Treatment of Carcinoma of the Colon and Rectum," by Richard B. Cattell, M. D., of Lahey Clinic, Boston, Mass.

At the March meeting of the Clinical Society there were two notable contributions:

1. "The Present Status of Endocrine Therapy in Gynecology," by Archibald D. Campbell, M. D., of Montreal, Canada.

2. "The Genesis and Surgical Treatment of Hypertension," by George W. Crile, M. D., of Cleveland, Ohio.

Dr. Roger Anderson, of Seattle, Wash., gave a special afternoon lecture on March 20th on 1. "An Anatomical or Non-Operative Method of Treating Fractures of Both Bones of the Forearm." 2. "Ambulatory Method of Treating Fractures of the Femur."

News Notes from Duke University School of Medicine.

On April 9th, Dr. Emil Novak, Associate Pro-

fessor of Obstetrics, University of Maryland School of Medicine, lectured to the staff and students on "Amenorrhoea."

On April 9th to 11th, the annual meeting of the American Association of Anatomists was held at Duke University, with 325 teachers of anatomy and biology in the colleges and universities of the United States and Canada in attendance. Dr. F. H. Swett, Professor of Anatomy, Duke University School of Medicine, was in charge of the local arrangements.

The Tri-State Hospital Association,

Composed of the Hospital Associations of North and South Carolina and Virginia, held its annual meeting at Old Point Comfort, Va., the middle of April, with an attendance of 400 delegates and visitors, many of whom remained after the meeting for a boat trip to Yorktown. The Virginia State Dietetic Association held its annual meeting at the same time.

The VIRGINIA HOSPITAL ASSOCIATION re-elected Dr. Lewis E. Jarrett, Memorial Hospital, Richmond, as president, and Mr. M. Haskins Coleman, head of Group Hospitalization in Richmond, as secretary-treasurer. Mr. W. N. Walter and Mr. C. B. Short, both of Roanoke, were elected vice-presidents, and Dr. W. T. Sanger, President of the Medical College of Virginia, Mr. O. K. Fike, Grace Hospital, Richmond, and Miss Ruby Morrison, Norfolk, were named members of the executive committee.

The NORTH CAROLINA HOSPITAL ASSOCIATION elected Dr. Moir S. Martin, Mount Airy, president; Dr. Robt. T. Ferguson, Charlotte, vice-president; Mr. M. E. Winston, Raleigh, secretary-treasurer and Dr. F. C. Hubbard, North Wilkesboro, and Dr. Charles A. Woodard, Wilson, were named directors.

The SOUTH CAROLINA group will name officers at a later date.

Southeastern Surgical Congress.

At the recent session of the Congress in New Orleans, Dr. Fred W. Rankin, Lexington, Ky., was named president-elect, and Dr. Benjamin T. Beasley, Atlanta, Ga., director-general of the Congress, was re-elected secretary-treasurer.

Dr. George W. Leavell

Recently located at Bristol, Va., with offices in the Reynolds Arcade Building, where he is engaged in the practice of medicine and surgery. Dr. Leavell graduated from the University of Louisville in 1911 and in 1912 went to Wuchow, South China, as a medical missionary under the Southern Baptist Board. While in China, Dr. Leavell built and brought to self-support the Stout Memorial Hospital, which now has 125 beds and modern equipment, and operated it until his health forced him to return to the States in 1934.

Dr. James Tate Mason,

President-elect of the American Medical Association, who suffered a stroke of apoplexy about the middle of April, was reported improved as we go to press. Dr. Mason is a native of Orange County, Va., and a graduate of the University of Virginia.

The American Association for the Study of Rheumatic Diseases

Will hold its fifth conference at the Phillips Hotel, Kansas City, May 11th. An interesting program has been arranged. Dr. Russell L. Haden, Cleveland, is President of this Association and Dr. Loring T. Swaim, Boston, secretary-treasurer.

Dr. Frank S. Johns,

Richmond, Va., was the guest speaker before the Norfolk County Medical Society at its regular meeting on April 13th. His subject was "Surgical Considerations in the Treatment of Essential Hypertension."

Attention, Doctor!

The various groups of the Woman's Auxiliary throughout Virginia observed "Doctor's Day," during the week of April 12th to 18th. In connection with this observance, the women are this month devoting the whole of their space in the MONTHLY to eulogizing the doctor—their individual doctors whom they stand ever ready to praise and help. Be sure to read the department of the Woman's Auxiliary and secure inspiration from the thoughts dedicated to you.

Dr. J. W. D. Haynes,

Mathews, Va., was recently appointed coroner of Mathews county, succeeding the late Dr. C. M. Rains.

Dr. H. Ward Randolph

Head of the Medical staff of the Virginia Home for Incurables in Richmond, was the guest of honor at a reception given on April 14th, at which time

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he was presented with a large silver platter in recognition of his more than twenty-five years of service in ministering to the patients at that Home. Among those to greet Dr. Randolph was Dr. Karl Blackwell, also of Richmond, a former interne at the Home.

The American Neisserian Medical Society

Will hold its second annual meeting on May 18, 1936, in the Hotel Statler, Boston, Mass., at which time a very interesting program will be presented. All who are interested are cordially invited.

For program or other information, write the secretary, Oscar F. Cox, Jr., M. D., 475 Commonwealth Avenue, Boston, Mass.

Dr. Clarence Porter Jones, Jr.,

Class of '34, Medical College of Virginia, has located at Craigsville, Va., where he is engaged in general practice. Dr. Jones was formerly of Newport News, Va., and interned at the Southern Pacific Hospital, San Francisco, and at the Mercy Hospital, Sacramento, Calif.

Attend Baltimore Conference.

Dr. David C. Wilson, University, and Drs. Harvey D. Coghill and Howard R. Masters, of Richmond, attended the conference held at Phipps Institute, Baltimore, on April 8th-10th, in regard to the teaching of psychiatry in medical schools. This was held under the auspices of the National Committee on Mental Hygiene.

Dr. E. Berkeley Neal,

For a time located at Emporia, Va., has recently returned from a postgraduate course in New York Postgraduate Hospital and has just opened his office at 414 Shenandoah Life Building, Roanoke, Va., for the practice of pediatrics.

The Gill Memorial Eye, Ear and Throat Hospital,

Roanoke, Va., recently completed its tenth annual Spring Graduate Course, at which they had a total registration of sixty-two doctors representing twenty states. Admission had to be refused to a number on account of lack of accommodations.

Dr. N. T. Ballou, Jr.,

Of the class of '32, Medical College of Virginia, is now associated with Dr. J. Minor Holloway, Fredericksburg, Va., in the practice of eye, ear, nose and throat. Dr. Ballou served an internship at the Memorial Hospital, Richmond, following which he was on the House Staff of the Brooklyn Eye and Ear Hospital.

Dr. Charles A. Young,

Roanoke, Va., sailed from New York on the *"Europa"* on April 15th, for a two months' postgraduate course in ophthalmology at Oxford University, England. He will return on the *"Normandie"* and will resume his practice in Roanoke on July 1st.

Dr. George Louis Jones,

Who has been practicing at Killarney, W. Va., since completing his internship at St. Luke's Hospital, Richmond, will open his office in Martinsville, Va., about May 1st, and will be engaged in general practice. He is a member of the class of '34, Medical College of Virginia.

Dr. Wallace M. Yater,

Washington, D. C., was in February elected a director of the American Heart Association for a term of two years.

Dr. M. H. Eames,

Located for sometime at Quinton, Va., is now at Providence Forge, Va.

Radiologic Review's "Radium Number."

The March issue of the *Radiologic Review and Mississippi Valley Medical Journal* (Quincy, Ill.) is the ninth annual "Radium Number" of that publication. It is entirely devoted to Radium, containing ten original articles, especically written for this issue by leading American Radium Therapists on various phases of Radium Therapy. There are contributions by Jones, of Cleveland; Schreiner and Wehr, of Buffalo; Soiland, of Los Angeles; Murphy, of Minneapolis; Fox, of Dallas; Levin and Sittenfield, of New York; Swanberg, of Quincy; Simpson, of Chicago; etc. The issue includes three important contributions on gynecologic malignancy.

The American Social Hygiene Association

Announces that Dr. Ray Lyman Wilbur, of the Stanford University, California, has been elected president of that Association. He succeeds Dr. Edward L. Keyes, who was forced to resign after a service of twelve years, on acount of his health.

The Surgeons and Medical Examiners of the Atlantic Coast Line Railroad Company

Held their annual meeting at Charleston, S. C., on April 7th and 8th, at which time those attending had the pleasure of visiting the azalea gardens. The invited guests at the meeting included Dr. Beverley R. Tucker, Richmond, Va., Dr. Stewart R. Roberts, Atlanta, Ga., and Dr. Frank H. Lahey, Boston, Mass., all of whom presented interesting papers. Dr. J. E. Rawls, Suffolk, was elected vice-president from Virginia. The following Virginia members were registered in attendance:

Dr. L. H. Apperson, Richmond.
Dr. B. J. Atkinson, Emporia.
Dr. R. L. Corbell, Portsmouth.
Dr. E. A. Drum, Richmond.
Dr. D. L. Harrell, Suffolk.
Dr. T. F. Jarratt, Jarratt.
Dr. G. M. Naff, Emporia.
Dr. J. E. Rawls, Suffolk.

Dr. T. Allen Kirk,

Roanoke, Va., retiring president, was named first vice-president of the Society for Cripples of Southwest Virginia at its annual meeting held recently.

Re-Nominated in Democratic Primary.

Dr. J. Fulmer Bright received the nomination as mayor of Richmond for the fourth consecutive term in the Democratic primary in April.

Dr. Charles R. Anderson, Winchester, was also re-nominated as mayor of that city.

Volunteer Tuberculosis Work in Virginia.

The annual report of the Virginia Tuberculosis Association shows that the local branches in the counties and cities of the State last year paid for 679 months' sanatorium board for indigent patients, nursing service, X-rays, buildings and screening of sleeping porches, gave assistance at tuberculosis clinics, furnished food and clothing to tuberculous patients, paid for the correction of physical defects in contact children, carried on educational campaigns, school nutrition work, the transportation of patients to clinics and sanatoria, assisted in rehabilitation of cured patients, and paid for laundry at clinics and for patients at sanatoria.

Field Workers of the Association paid 427 visits to counties, 49 to cities, and called upon 2,322 persons in the interest of the local tuberculosis programs. They attended 113 committee meetings and made 78 talks at public meetings to audiences aggregating 3,722 people.

One of the outstanding achievements of the year is the beginning of a rehabilitation program at Catawba Sanatorium—the first of the sort in the South. The W.P.A. is paying the salaries of two part-time teachers, who are patients, and one full-time teacher who is giving a course in stenography and typewriting. The patients are receiving elementary, high school and some college instruction, and many are learning to read and write, who could not do so upon entering the sanatorium. Some are learning such things as poultry raising in addition to academic work. They are enthusiastic over their work and appreciate the opportunity to prepare themselves to make a living when they are discharged from the sanatorium.

The financial report shows that $75,500.40 was expended during 1935 by the State and local tuberculosis associations in the campaign against tuberculosis.

The First International Congress of Sanatoria and Private Nursing Homes

Will be held in Budapest at the end of September next. Special invitations shall be sent in due course to all parties concerned. The short extract of lectures, discussions, proposals, etc., should be sent to the following address as early as possible in order that they may be included in the official programme: Committee of the First International Congress of Sanatoria and Private Nursing Homes, Budapest, Margitsziget, Sanatorium.

The Virginia Pediatric Society

Is to hold its annual clinic on Friday, May 29th, at the Medical College of Virginia, Richmond.

PROGRAM

10:00 A. M. TO 12:00 M.

Symposium on Disorders of the Respiratory Tract—Papers to be presented by Selected Members of the Society and to be followed by a general discussion.

12:00 M.

Malignancy in Children—Dr. A. Compton Broders, Professor of Surgical Pathology and Director, Cancer Research, Medical College of Virginia.

1:15 P. M.

Lunch at Cabaniss Hall.

2:30 TO 4:30 P. M.

Clinical Pathological Discussion of Pediatric Cases—Conducted by Dr. Paul Kimmelstiel, Associate in Department of Pathology, Medical College of Virginia.

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All members of the Medical Profession interested in Pediatrics are invited to attend these sessions. For further information, write Dr. James B. Stone, chairman Program Committee, 2042 Park Avenue, Richmond.

Dr. Eugene W. Senter,

Class of '32, Medical College of Virginia, who interned at City Hospital, Hartford, Conn., and was later at Station Hospital, Ft. Oglethorpe, Ga., has just opened offices in Shenandoah Life Bulding, Roanoke, Va., and will specialize in clinical pathology.

Mental Hygiene to Have Consideration.

At the Conference of Social Work, last year and this, so many facts were brought out in the papers presented which the doctors in charge of the Mental Hygiene Section felt could only be handled constructively by an adequately organized society, that tentative plans for the organization of such a group are now under consideration. The findings of the Mental Hygiene Section of this year's Conference, which appear on page 111 in the MISCELLANEOUS DEPARTMENT in this issue, will prove interesting.

Dr. and Mrs. Elbert Terrill Montgomery,

Hempstead, N. Y., are receiving congratulations upon the birth of a son. Dr. Montgomery is a former resident of Richmond and graduated from the Medical College of Virginia in 1930.

Doctors and Students Honored.

Two faculty members, two alumni, and ten highest ranking medical students in the third and fourth-year classes of the University of Virginia, School of Medicine, were recently initiated into membership in the medical scholarship society, Alpha Omega Alpha. The faculty members are Drs. Carl C. Speidel and William W. Waddell, and the alumni are Dr. Isaac A. Bigger, Richmond, and Dr. T. Duckett Jones, Boston, Mass.

Students from the graduating class in medicine so honored are: Harry Carrington Fleming, Grafton, W. Va.; Carrington Harrison, Danville; Joseph Hawkins Low, Jr., Welcome; George Wray Morse, Portsmouth; Robert Burwell Nelson, Jr., Winchester; and William Norman Thornton, Jr., Courtland.

The National Society for the Prevention of Blindness.

In the 21st Annual Report made by this Society in April, a steady progress in the United States toward elimination of the principal causes of vision impairment and total loss of sight is noted. In 1935 there were 476 sight-saving classes for the education of school children with seriously defective vision, as compared with 260 such classes in 1925. The Society's motion picture film "Preventing Blindness and Saving Sight" was exhibited to more than a thousand different audiences throughout the United States, and members of the staff visited eighty-two cities in twenty-six states, to assist local groups interested in sight conservation. Nearly a quarter-million pamphlets were distributed during the year.

The work of the Society is supported entirely by voluntary public contributions. The income for 1935 was $109,000 and expenditures were $134,000, necessitating the use of $25,000 from the Reserve Fund.

Dr. Luther B. Lowe,

Class of '34, Medical College of Virginia, who interned at Lewis-Gale Hospital, Roanoke, Va., is now associated with Dr. W. C. Caudill at St. Elizabeth's Hospital, Pearisburg, Va., where he is engaged in the practice of general medicine and surgery.

Dr. Paul D. White,

Boston, Mass., was guest speaker on President's Night of the Norfolk County Medical Society, April 6th. His subject was "The Prognosis of Heart Disease." Following his address, the President, Dr. James W. Hunter, tendered an informal reception to Dr. White.

Dr. A. M. Byrd,

Northfork, W. Va., formerly of Bath County, Va., left the middle of April for his annual visit to the V-D Clinic of the U. S. Public Health Service at Hot Springs, Ark. While away, he plans to make a side trip to Phoenix, Ariz., to visit relatives.

For Sale—

Burdick ultra-violet treatment lamp. A-1 condition. For information, write "Burdick," care this journal. (*Adv.*)

For Sale—

Physician's Office equipment and instruments, including diatherm, Quartz mercury lamp, and infrared ray treatment lamp. First-class condition. Address "Office Equipment," care VIRGINIA MEDICAL

MONTHLY, 1200 East Clay Street, Richmond. (*Adv.*)

Laboratory Technician Wishes Position.

Laboratory technician, graduated in 1932, desires position in doctor's office, hospital or clinic, any location. Good references. Address "Technician," care VIRGINIA MEDICAL MONTHLY, 1200 East Clay Street, Richmond, Va.—(*Adv.*)

Office Available.

Office for twenty-two years of the late Dr. F. H. Beadles and possibly many of his patients are now available for a dermatologist or any other practicing physician. For information apply at 113 East Grace Street, or phone 3-2566, Richmond, Va. (*Adv.*)

Position Wanted.

Well-qualified young Virginian desires association with hospital, group, or with established practitioner. Good general training with special training in obstetrics. Considerable experience. Would like to do obstetrics exclusively but would consider combination of obstetrics and general medicine. Answer "OBS," care this JOURNAL.—(*Adv.*)

For Sale—

Late Model General Electric diatherm. Scarcely used. Price reasonable. Key, "G. E. D.," care this journal. (*Adv.*)

Obituary Record

Dr. A. Watson Hammond,

Amsterdam, Va., was found dead in bed on the morning of February 17th, though he was apparently in his usual health upon retiring the night before. He was born in Raleigh County, W. Va., on March 16, 1856. After attending medical lectures in Baltimore, he went to Louisville and graduated in medicine from the Kentucky School of Medicine in 1891. He then practiced for a time in the West Virginia coal fields before locating at Amsterdam. He had been a member of the Medical Society of Virginia since 1903 and had served on its Membership Committee for some years. His wife and three children survive him.

Dr. Frank H. Beadles,

Dermatologist of Richmond, Va., died of heart disease on March 26th. He was a native of Louisa County, Va., and sixty-three years of age. After graduation from the Medical College of Virginia in 1894, Dr. Beadles began the practice of his specialty in Richmond where he had since lived. He had been a member of the Medical Society of Virginia for thirty-nine years. His wife and two children survive him.

Dr. Harrison Talmadge Smith,

Independence, Va., was found dead in his bed on the morning of April 18th, death being due to a heart ailment. He was fifty-two years of age and a graduate of the Medical College of Virginia in the class of '08. He had served several terms in the General Assembly of Virginia as a delegate from Grayson County and was prominently identified with the civic and business affairs of his section. He was a Shriner, a surgeon for the Norfolk and Western Railway, and a member of the Medical Society of Virginia, in which he was on the Committee on Legislation. Dr. Smith is survived by his wife and three children.

Dr. Ernest Auguste DeBordenave,

Well-known physician of Franklin, Va., died April 6th, after an illness of several months. He was born in 1874 and was a graduate of the Medical College of Virginia, class of '99. Dr. DeBordenave was very active in civic affairs, having been a charter member of the Franklin Rotary Club, former Republican Chairman of Southampton County, and former Franklin postmaster. He had been a member of the Medical Society of Virginia since 1900. Two children survive him, his wife having died on March 16th of this year.

Dr. William Edward Knewstep,

Hampton, Va., died March 24th at the Johns Hopkins Hospital, following a long illness. He was a native of Nansemond County and forty-seven years of age. Dr. Knewstep graduated from the Medical College of Virginia in 1911, and he had been a member of the Medical Society of Virginia since 1912. His wife and a son survive him.

Dr. William Otey McCabe,

Thaxton, Va., died January 18th, of coronary occlusion. He was sixty-five years of age and graduated from the Baltimore Medical College in 1892. Dr. McCabe was a past president and secretary of the Bedford County Medical Society. He had been a member of the Medical Society of Virginia for forty-two years.

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Dr. Robert E. Hughes,

Prominent physician of Smyth County, Va., died of pneumonia, at his home in North Holston, April 13th. He was fifty-one years of age and a graduate of the class of 1909 of the former University College of Medicine, Richmond. After graduation, he accepted the post of physician with the Southern Gypsum Company at North Holston, where he had since made his home. Dr. Hughes was a Mason and a member of several other fraternal organizations. He joined the Medical Society of Virginia following his graduation in 1909. His wife and a daughter survive him.

Dr. Samuel Isaac Conduff,

Prominent pediatrician, of Roanoke, Va., died in the University Hospital at Charlottesville, Va., March 18, 1936. While his health had not been so good for the past several years, his condition did not become critical until a short time before his death.

Born at Willis, Floyd County, Va., September 9, 1874, he graduated in medicine at the former Baltimore Medical College, now a part of the University of Maryland, in 1898, and after doing postgraduate work at the Polyclinic in New York during 1910-1911, he located in Roanoke.

In 1900 he married Miss Myrta Preston who with their only child, Preston Harmon Conduff, survives him.

Dr. Conduff was a prominent Elk, and at the time of his death was a member of the board of trustees of Roanoke Lodge of Elks.

B. P. S.

The following resolutions were adopted by the Roanoke Academy of Medicine:

WHEREAS, it has seemed wise to the Great Physician to remove from our midst our fellow-physician and brother, Dr. Samuel I. Conduff:

We, The members of The Roanoke Academy of Medicine, in special meeting called, voice our submission to the decrees of an All-Wise Providence, express our appreciation of the service rendered by Dr. Conduff to the medical profession of Roanoke, and to the sick and suffering of this community. Although broken in body and spirit, over a long period of time, he was faithful to the end.

We who knew him best are glad to pay tribute to our departed friend and associate, and express our sincere sympathy to the members of his family in their bereavement.

BE IT RESOLVED, that a copy of these resolutions be furnished Dr. Conduff's family, be spread upon the minute-book of the Academy of Medicine, our local papers, and the VIRGINIA MEDICAL MONTHLY.

R. L. MASON,
ALVAH STONE,
J. W. PRESTON,
Committee.

Appreciation of Dr. R. M. Shelton.

The Orange County Medical Society at its April meeting, expressed the following appreciation of Dr. Shelton:

Dr. Rawley Martin Shelton, of Unionville, Va., a charter member of the Orange County Medical Society, was a true example of the loyal, faithful and greatly-loved country doctor. He was always ready to go whenever called, and the roads were never too bad for him to try to get over them.

On Sunday morning, March 15, 1936, about the time his many friends and patients were passing his door on the way to church, he started on that long call from which he shall never return.

We, his professional associates, who have shared jovial comradeship with him, and the community which he has so faithfully served, will miss him.

THEREFORE, BE IT RESOLVED, that we employ this simple means of paying our sincerest respect to his character and abilities and to extend our deepest sympathy to his bereaved family.

BE IT FURTHER RESOLVED, that copies of these resolutions be sent to the VIRGINIA MEDICAL MONTHLY, the family, and be entered on the minute-book of the society.

LEWIS HOLLADAY,
O. N. SHELTON,
J. P. HANKINS,
G. R. ELLIOTT, *Secretary.*

Dr. Charles Jefferson Miller,

Widely-known gynecologist of New Orleans, died March 21st of coronary thrombosis. He was sixty-two years of age and received his medical degree from the University of Tennessee in 1893. Dr. Miller was a founder, past president, member of the Board of Regents, and a life member of the American College of Surgeons, and was also a past president of the Southern Surgical Association, the Southeastern Surgical Congress, and the American Gynecological Society.

Dr. Curtis Harrod Thomson,

Seattle, Wash., died March 7th, at the age of sixty-one. He was a graduate in medicine from the University of Virginia in 1897. Dr. Thomson was secretary of the Washington State Medical Association.